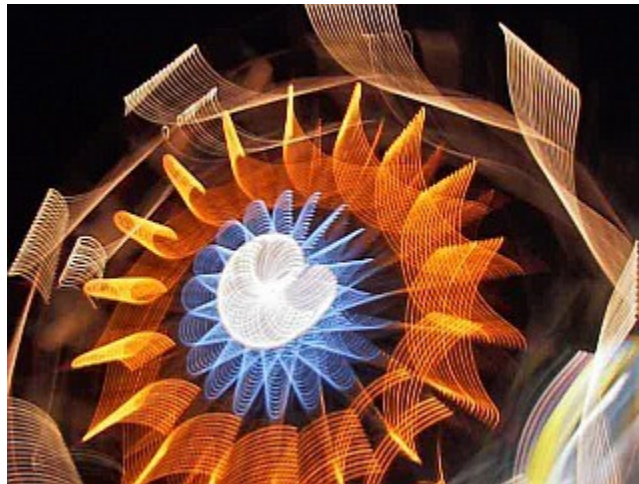


15 Years of Essay-Blogs About Contemporary Art & Digital Photography: In-Depth Articles from 1997-2012

By Rick Doble



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**44 blog-articles from the earliest days
of digital photography to the present day**

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INTRODUCTION

"For the artist communication with nature remains the most essential condition. The artist is human; himself [herself] nature; part of nature..."

Paul Klee, *Paths of the Study of Nature*

"The old bond between humans and nature has been permanently altered by technology. The task of the 21st century artist is to forge a new relationship between humans and the world, since our fate is inseparable from that of the Earth."

Rick Doble

NOTE: These blogs/essays were written over a 15 year period. I have provided the date for each one after the title in parentheses as in (1999) for a blog written in 1999.

I reject the notion that artists cannot write clearly and insightfully about their work.

I am a digital photographer who has crafted a new approach to photographic imagery and I am also a writer who has written extensively about my ideas. My thoughts and blogs about photography and the photos that I take are inseparable. Often my ideas will lead to new photographs and new photographs will inspire new ideas. In addition I have been a writer for as long as I have been a photographer. During the Renaissance Michelangelo was an architect, painter, sculptor and also a prolific poet. Perhaps the model of the Renaissance is today more appropriate -- at least for me.

In 2010 my third book on digital photography, *Experimental Digital Photography* (Pixiq/Sterling Publishing, New York/London), was published. In hindsight many of my writings that began in the 1990s had been pointing toward this book, a work of about 300 photographs along with extensive quotes, explanations and theory.

So in this ebook of collected blogs, you will find ideas that proceeded my *Experimental Digital Photography* book along with a number of blogs I wrote after its publication that continue the thoughts in that volume.

This collected series of over 40 blogs began fifteen years ago in 1997. Looking back I see now that photography was on the brink of a major change. The old world of film and chemicals was about to be replaced by the new world of computer bytes and memory cards. A friend of mine said that my work straddled the two worlds and also made a link or a bridge between them.

I believe that there is a continuing cultural dialog that passes from generation to generation and century to century. For example, I felt very strongly fifteen years ago that the new digital camera would allow me and other photo artists to capture artistic imagery that was first envisioned by the Italian Futurists and the Cubists around 1910. I even wrote about this in the late 1990s although it would not be until years later -- and with a more sophisticated camera -- that my work would fully show how this could be done. Digital technology, in a sense, was therefore not a photographic game changer, instead it allowed me to fully realize what artists had glimpsed a hundred years ago -- it allowed the cultural dialogue to progress.

Also through these essays I began to see that photography straddled a world that involved both science and art -- and that rather than being a limitation, it allowed a broad range of imagery and experimentation that could blend scientific ideas, state-of-the-art technology, artistic imagery and age old themes from art of the past.

At the same time, I realized that with computers and hi-tech we were in an entirely new world and in uncharted waters. I do believe that technology has permanently changed our relation to nature and the Earth, something which the classical artists could not have imagined.

When I look toward the future, I see an environmental crisis looming. I do believe that as artists we can create work that helps forge a new connection between people and nature, people and the Earth. In a sense we have no choice because as I said in my quote at the beginning: "our fate is inseparable from that of the Earth."

The blogs you read here the same that I published either on my website up to about 2010 and on the PIXIQ.com website, owned by the publisher of my book *Experimental Digital Photography*, after 2010 -- with only a few very minor changes. All told well over 300,000 page hits were recorded on the web for these various blogs. Now, in ebook form, they hopefully make a coherent point of view and approach to the new art of digital photography and how it relates to both the past, present and the future.

THE ART OF PHOTOGRAPHY



Is Photography An Art? I Got An Email That Says No (2011)

*Century old prejudices and misconceptions about photography continue to this day
So lets debunk some myths*



PHOTO: Sparklers At Night: 10 years of experience with digital photography and another 30 with film photography resulted in this unplanned spontaneous shot of two women twirling sparklers at night: 13 seconds, handheld (yes). This occurred late one night because there happened to be a box of sparklers and I just happened to be there listening to a local garage band. When two young women stood outside the garage door in light rain and held these sparklers, I grabbed my camera. It took a number of shots to get the exposure and composition. This shot was taken when they were almost out of sparklers. (Rick Doble)

About a year ago I got the following email. At first I laughed. The next day I wanted to cry. Not because the writer obviously did not like my work, but because this young person was still mouthing the same old prejudices and stereotypes of the past 190

years about photography. Here is this unsolicited email rant that I received on January 31, 2010. I have not changed anything except to note a few factual errors in [BRACKETS]. The author is writing in response to one of my essays about the art of photography that I put up at my website: www.rickdoble.net.

Unfortunately your points of view fly in the face of what art is about . You end up always "taking pictures " and not much else, as do thousands of camera bugs - and then must validate time spent by "artistic " statements as to what is art, and photographic. art and on and on .Bresson [ED.: it's Cartier-Bresson] went back to drawing as he said "that's where true creativity is for him " [ED.: no such quote] Hockney in a conversation after his Polaroid adventure said almost the same thing. Yes there are some photographs that approach what is called art. But most photographs do little more than confirm that the photographer was present when the shutter button was pressed. Rearranging a point of view is not creativity ,it is what window dressers do -or the right angle ,and you get the wonderful postcards of Ansel Adams,almost flawless printing of pictures that should be hung in frames with coffin handles attached, they are so lifeless . Photographers have very little perception what "art" is about ,they think it is taking pictures.

Here's what I have to say to the person who wrote this email:

Obviously all photography is not art:

== just as all emails are not great essays or poems

== just a person who sings in the street is not a great musician

And yet every so often one of these reaches the level of great art such as Enrico Caruso who was a street singer in Naples and who performed in cafes before he became perhaps the greatest opera tenor of all time.

Photography is a very different art form and a relatively new one -- which is why there are so many misconceptions. And unfortunately after almost 200 years since the invention of photography, we photographers still find ourselves defending our art form from those who claim a kind of cultural high ground that excludes it.

Well, if people are going to diss my chosen art form, they, at least, have to get their facts straight. What this email reveals is an ignorance about the art of photography along with a number of erroneous assumptions about what is called art.

While never defining what art is -- yet being quite sure that photography can never meet this unnamed criteria -- the writer of this email reveals his ignorance: he is certain that photography is merely "Rearranging a point of view" which "is not creativity."

Now point of view and angle **are** very important to photography but along with a host of other photographic elements that take many years to master -- such as the effect of different focal length lenses, distance, timing, lighting, composition, depth of field, focus, shutter speed, ISO, tonal range, exposure and more. While a painter has a palette of colors and must master the skill of drawing, the photographer instead has these elements to work with and to put together, often in a split second -- literally.

Oddly the split second it takes to shoot a photo seems to work against photography -- since it seems almost effortless to create a full large image -- whereas a painting can take months. Yet keep in mind that many great paintings, such as some of van Gogh's, were finished in hours.

A friend of mine told me this joke about an actor who suddenly became successful: "After 20 years she was an overnight success." We could say the same about photographers: After 5 years of intensive training and experience, they can take a photo in an instant.

And here is what the painter Vincent van Gogh had to say in one of his letters to his brother Theo about speed: "To work quickly isn't to work less seriously, it depends on the confidence and experience one has. In the same way, Jules Gerard the lion-hunter says in his book that at the beginning young lions have a lot of trouble killing a horse or an ox, but old lions kill with a single well-judged strike from a claw or a tooth, and have an amazing sureness for that job."

LETS TACKLE THE STEREOTYPICAL ARGUMENTS ONE BY ONE

Photography uses a machine so it cannot be an art

It is amazing how long this argument has hung around. In the early days, when photography was invented, there were not as many machines -- so this argument seemed to make a kind of sense. But today machines are now used for a variety of art forms. For example, it's hard to imagine contemporary music without devices: microphones, amplifiers, electronic instruments, mixers, recorders, reverb machines, etc.

Further: Photo-graphy (from the Greek 'light-writing') *requires* a device to capture light. The device must include a dark chamber -- hence the term 'camera' which comes from the Latin meaning room or chamber. Light is then allowed to enter that chamber in a controlled way (an exposure) which then falls onto light sensitive material (film or digital light sensors). These are the essential tools in this art form of working with light.

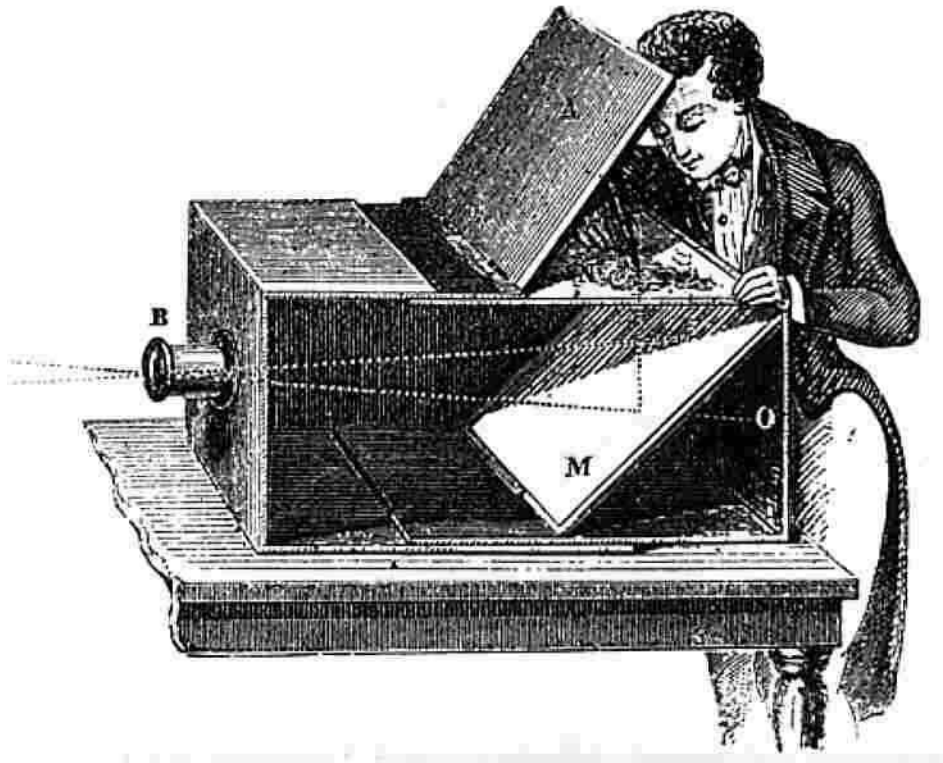


ILLUSTRATION: Camera Obscura: An artist drawing from life with an 18th century camera obscura, labeled: B (lens), M (mirror), O (line of light if mirror not in way). The artist used thin tracing paper to capture the outlines, transferred those to canvas, board or paper & finished the drawing. Date c1850. Caption quoted from Wikimedia. (commons.wikimedia.org)

Photography is a craft and not an art

Much of photography is a craft, no doubt, just as many of the drawings and paintings of fashion -- that are, for example, published in fashion magazines -- are well executed work but not great art. Yet some photography rises to the level of art -- just as some fashion paintings do. The photographs of Weston, Adams, Arbus, Cartier-Bresson, Evans and Lange are some of the greatest achievements in the art of the 20th Century.

Photography is technical not really creative

All that stuff about f/stops, ISO, focal length is for techies, but not artists. Well I've got late breaking news, any art is technical. Take dance, for example; here are some technical terms in dance: arabesque, Pas de Deux, Pirouette, cake walk -- a site on the Internet lists over 200 such terms.

But what about painting? -- the visual art that seems to set the standard for what is and is not art when it comes to two dimensional depictions. Painting is just an intuitive artistic expression of an artist's inner self -- something that a photographer could never

aspire to -- right? Wrong! Painting is also quite technical: The about.com website glossary of painting lists over 250 technical terms used in painting such as the related painting terms of Alla prima, glazing and underpainting or alligating and craquelure.

So lets finally put that argument to rest: all art forms have a technical aspect to them, period. And to create art with an art form, a practitioner has to absorb the technical knowledge and then move on to use that knowledge to create art. The technical knowledge at that point becomes almost second nature and the intuitive part of the artist's brain can then kick in to use the technical aspects in a creative manner.



ILLUSTRATION: The Lacemaker, painted ca. 1664 by Johannes Vermeer (1632–1675). It is now believed that Vermeer used a camera obscura to understand light and to help him paint works that look very photographic. (commons.wikimedia.org)

And while we're debunking the myths about the purity of painting consider this:

== Many painters used photography in their work -- such as Degas who took photos to study the movement of dancers and of horses.

== Before the invention of photography -- when there was just a camera and no film -- painters used a camera to guide them in their drawings -- it is quite clear now that Vermeer used a camera to create his great paintings.

== Duchamp's modern and ground breaking painting, *Nude Descending a Staircase*, was inspired by the work of photographers, Muybridge and Marey.

== Today many painters take a photograph and go back into their studio to paint from that photograph. The well known painter David Hockney pointed out that he has seen some "drawings or paintings [that] have been made from photographs" by other painters.

== David Hockney has also put forward the idea that the advancement of Western painting since the Renaissance was derived directly from optical and photographic devices rather than artistic vision.

If Photography Is An Art, What Are Its Special Strengths? (2011)

Photography's unique capabilities often give it the edge in the creation of imagery



PHOTO: Two Violinists: Candid undoctored photo straight from the camera: off camera flash combined with 5 second exposure, handheld, white balance set to tungsten. New Years get together, Gloucester, NC. From my book: *Experimental Digital Photography* (Lark Books/Sterling Publishing).

This article is in two parts:

- 1) The first part discusses photography's special strengths
- 2) The second part shows how these elements can be used to create great art when put together by a master photographer, Dorothea Lange

UNIQUE CAPABILITIES OF PHOTOGRAPHY

I believe that the primary strength of an art form lies in its unique capabilities, things that are fundamental and at the heart of the medium. Photography has a number of these.

== Photography is the art of light

This simple statement says volumes. No other major art form deals directly with light itself. We photographers are light artists.

To live a visual life is an enormous undertaking, practically unattainable. I have only touched it, just touched it.

Dorothea Lange

== Photography is the art of timing

Because of the shutter, time and timing is a key element in photography -- and consequently photography can capture a sense of the moment and freeze an instant better than any other medium. Go back and look at photos in your family album from ten years ago if you want to see how well photography records smiles at a birthday and the years gone by, along with the emotions these evoke.

Photography takes an instant out of time, altering life by holding it still.

Dorothea Lange

== Photography is the art of the real

When I take a photo and don't add extra software elements, I have taken a shot of a real thing, in real time -- and this aspect of photography can be quite emotional and expressive. And even if the shot is in a studio, it is still real. The light that hit the film or the light sensors came from real things in real time.

Just about every news story I have seen on TV about a house burning down or a house being flooded includes a statement from the owners who say, "Well, at least we were able to save the photographs" showing how important, how irreplaceable and how real they are.

Rick Doble

== Photography mimics the eye, often giving viewers the feeling they are seeing through the photographer's eye

The camera lens is similar to the human eye, although there are significant differences. As a result photography can deliver a sense of 'you are there' better than any other medium.

== The camera is an instrument that teaches people how to see without a camera.

While there is perhaps a province in which the photograph can tell us nothing more than what we see with our own eyes, there is another in which it proves to us how little our eyes permit us to see.

Dorothea Lange

Each of these unique strengths can become a major element in the creation of a photograph, and, when successful, has an impact unmatched by any other art form.

A RECIPE FOR A GREAT PHOTOGRAPH

Okay, I'm going to try to keep it simple -- but realize that each one of these elements mentioned above: light, timing, reality, the photographer's eye can take a lifetime to understand.

Let's take light in a candid situation: There is the overall quality such as diffused, bright, single source, multiple sources and if it is multiple -- the normal situation -- each light source has its own character which mixes with other light sources. Then there is the angle and the large variety of shadows created along with reflected light. Plus there are reflections themselves which have a quality all their own depending on the reflecting material. There is light that flares or overexposes. In a candid situation the light can change rapidly. And in addition the tonal range of the photographic medium has to be understood -- as the eye can see a wider range of light and dark than film or digital light sensors can capture.

This benefit of seeing...can come only if you pause a while, extricate yourself from the maddening mob of quick impressions ceaselessly battering our lives, and look thoughtfully at a quiet image...the viewer must be willing to pause, to look again, to meditate.

Dorothea Lange

Think we're done -- far from it. What I just outlined describes black and white photography. Add color and add a whole new set of variables. There is the color of each light source which changes if the light is reflected since it takes on the color of the surface that reflects it -- and virtually every lighting situation contains reflected light. There is the decision the photographer must make about color balance, i.e., which light source is considered white. Plus there are color harmonies -- or lack of them -- and the overall mood of the color such as pastel, highly saturated, or nearly monochromatic.

Okay -- enough of our quick tour of light. I could go into the same amount of detail about the other three capabilities but I'm trying to keep it simple. Now combine two of these capabilities or three or all of them together (light, timing, reality, and seeing

through the photographer's eye) and what do you have in the hands of a master? A great photograph.

*Put your camera around your neck along with putting on your shoes,
and there it is, an appendage of the body that shares your life with
you.*

Dorothea Lange

EXAMPLE OF A GREAT PHOTOGRAPH

Dorothea Lange's famous 1930s portrait of a destitute pea picker in California is a perfect example. When she took this, she had been a photographer for over 20 years. This iconic photo, known as *Migrant Mother*, became quite famous in its time because this close up of an individual and her children made real in human terms the devastation that was inflicted on millions of people during the Great Depression.

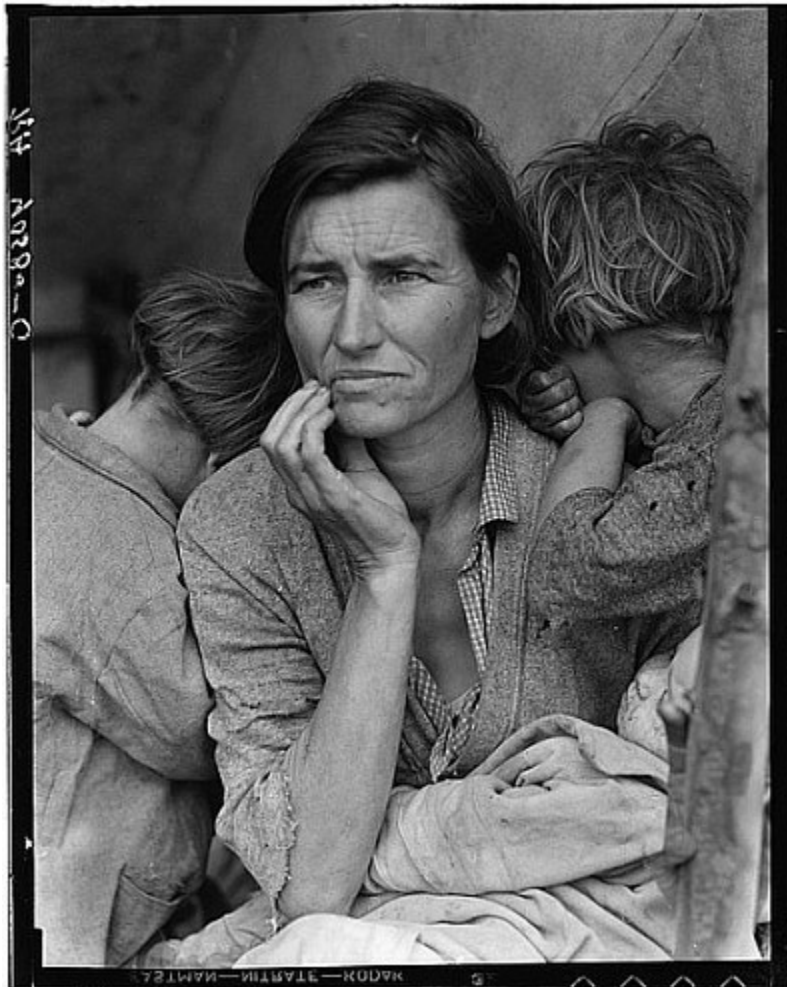


PHOTO: *Migrant Mother*, Dorothea Lange, 1936.
Photo available from the US Library of Congress. (loc.gov)

Like any great art we can analyze it and over analyze it -- but in this seemingly simple and direct picture there is a lot going on. To begin this uncropped 4"x5" photo is a masterpiece of composition, reality, timing -- with two children the scene no doubt changed seconds later -- and portraiture along with the sense that we are seeing what the photographer saw.

*I had to get my camera to register things that were more important
than how poor they were -- their pride, their strength, their spirit.*

Dorothea Lange

And while this photo is primarily emotional, it avoids being sentimental. We can read the anguish in the mother's face -- the hard work she has done in her wrinkles and the uncertainty about her future in her look. But it is also a masterpiece of form, shape, texture, soft even lighting and positioning -- imagine the same photo if the woman's arm was in a different place or if it was shot just a few feet further back or from the side or if the light was bright sunlight or the children moved.

In fact you don't have to imagine some of these -- go down to the end of this blog and see three of Dorothea's other photos from this session, shots that were taken at the same time, but without the same impact.

And still technically there is so much more: the almost black shades in the upper left to the almost white shades in the lower right; the vertical lines of the pole and the woman herself; the bright light on some strands of the children's hair and the almost perfect natural lighting on the woman's face; the different types of fabric that make a pleasing composition in themselves. And this photo also reminds a viewer of Madonna and Child, of similarities in Renaissance and Western art, of -- okay, okay, enough.

Part of my point is this: you do not have to know any photography stuff to feel the impact of this photo. But a seasoned photographer can understand the elements that came together. It's a bit like hearing a heart wrenching song: a musician can analyze its structure -- the key changes, the rhythm, the repetitions -- but as a listener you don't need to know any of that to feel the deep emotions that the song conveys.

*...a line will take us hours maybe;
Yet if it does seem a moment's thought,
Our stitching and unstitching has been naught.*

William Butler Yeats

I have focused on Dorothea Lange because

- 1) she was an accomplished photographer
- 2) she believed she was an artist whose medium was photography

3) she had a very clear vision of what she wanted to achieve with her art form photography, which she did

4) her work has been widely exhibited in major art museums and her work is in the permanent collection of the prestigious Museum of Modern Art (MOMA) in NYC

5) these photographs for this article are available without any copyright issues since they were shot for the US Farm Security Administration (FSA) and are available from the US Library of Congress which states, "There are no known restrictions on the use of Lange's 'Migrant Mother' images." http://www.loc.gov/rr/print/list/128_migm.html

SEE THE OTHER PHOTOS IN LANGE'S SERIES THAT LED UP TO HER FAMOUS SHOT



PHOTO: Long shot of the lean-to where the Migrant Mother and her children were staying. Dorothea Lange, 1936. (loc.gov)

Here's what Dorothea Lange had to say about taking the *Migrant Mother* shot,
"I saw and approached the hungry and desperate mother, as if drawn by a magnet. I do not remember how I explained my presence or my camera to her, but I do remember she asked me no questions. I made five exposures, working closer and closer from the same direction."

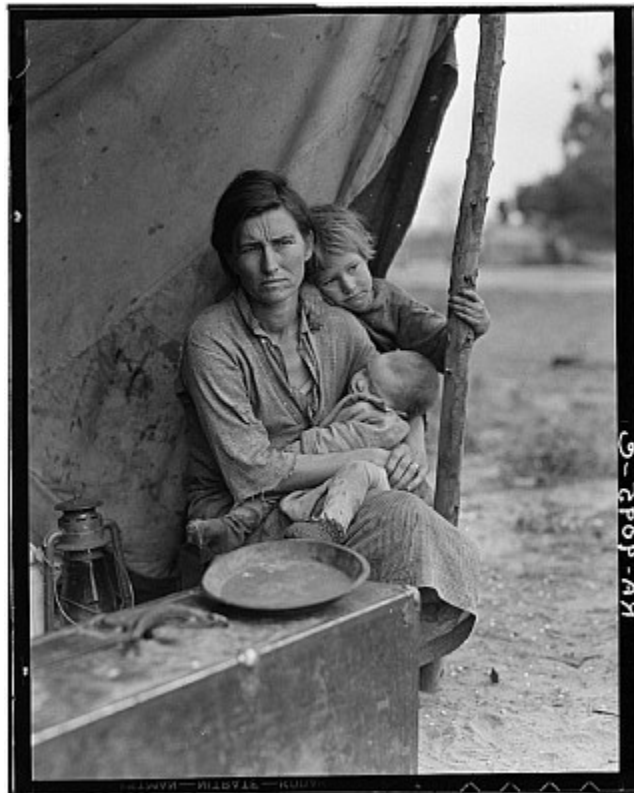


PHOTO: Medium shot of the Migrant Mother with baby and child. Dorothea Lange, 1936.
(loc.gov)



PHOTO: Much closer shot of the Migrant Mother with baby and child. Dorothea Lange, 1936.
(loc.gov)

You know, so often it's just sticking around and being there, remaining there, not swooping out in a cloud of dust: sitting down on the ground with people, letting children look at your camera with their dirty, grimy little hands, and putting their fingers on the lens, and you just let them, because you know that if you will behave in a generous manner, you are apt to receive it, you know?

Dorothea Lange



PHOTO: Dorothea Lange with her camera. Dorothea Lange walked with a permanent limp from a bout with polio. She used a cumbersome 4"x5" SLR Graflex camera with a back that swiveled for vertical shots. (loc.gov)

*Artists are controlled by the life that beats in them,
like the ocean beats on the shore.*

Dorothea Lange

My Own Favorite Photography Quotes (2011)

Sometimes less is more -- saying a lot in a few words

I have tried to boil down and distill some of my ideas into short phrases. Please feel free to reprint my quotes as long as you credit me, Rick Doble, as the source.

Composition & Picture Taking

This new world, that you create as a photographer inside the viewfinder of your camera, is cut from the clutter and confusion around you -- yet it must fit clearly and comfortably within your frame.

Rick Doble



PHOTO: Taken during a crowded and busy fall festival, I positioned myself so that I could carve out a shot and take a silhouette against a lighted background of a carnival ride. (Rick Doble)

Each element and each color in a composition has an energy that requires space. I frame my pictures so that those parts and pieces fit together and can breathe.

Rick Doble



PHOTO: The violinist, the violin, the bow and its movement plus the opposition of the two colors, blue and yellow, create this composition. (Rick Doble)

*In most photographs your eye goes to one point.
The composition is built around that point.*
Rick Doble



PHOTO: Although the lightning is far away and a small part of the composition, that is where the eye goes in this shot. (Rick Doble)

To understand composition learn the standard rules. Then take photographs that break every rule.

Rick Doble



PHOTO: I decided to break all the standard rules when I took this shot almost 16 years ago with my early Casio camera. (Rick Doble)

*There are no rules for good photographs,
there are only good photographs.*

Ansel Adams

Most successful photographs contain an abstract structure even though the picture is of real things. Learn to see your work abstractly so that you can understand how the visual pieces fit together. One way to do this is to turn your photo upside down or blur your eyes so that you can see the overall structure and tune out the actual subject.

Rick Doble

I have 2 modes: with camera and without camera. When I carry a camera the world looks different; it is divided into frames. Without a camera, the world merges and flows together and I can simply enjoy the rush of life.

Rick Doble

The enemy of photography is the convention, the fixed rules of 'how to do'. The salvation of photography comes from the experiment.
Laszlo Moholy-Nagy

*When I am taking my experimental photographs,
I do not see the same world that others see.*
Rick Doble

A painter's canvas is white; a photographer's canvas is black.
Rick Doble



PHOTO: The banjo player's movement can be 'painted' against the blackness of the night -- because the dark background is unexposed and therefore the light of his movement can be added to that. This kind of shot is impossible in the daytime. (Rick Doble)

The Art Of Photography

With each leap in technology and each foray into new imagery, we must learn all over again how to previsualize -- how to see what the camera sees and not what we see with our eyes. (See footnote.)

Rick Doble

*It is not about the rose, or the sunset or your girl friend's naked body
as beautiful as she may be*

*-- photography is about light and how that light reveals those things.
This is something even seasoned photographers often forget.*

Rick Doble

*I knew, of course, that trees and plants had roots, stems, bark,
branches and foliage that reached up toward the light. But I was
coming to realize that the real magician was light itself...*

Edward Steichen

*Visual rhythm is essential to photographic composition, as rhythm is
crucial to virtually all art such as music, poetry, acting and painting.*

*Rhythm conveys a sense of order but also communicates in ways
that are intuitive and cannot be put into words.*

Rick Doble

*What reinforces the content of a photograph is the sense of rhythm –
the relationship between shapes and values.*

Henri Cartier-Bresson

*Understanding and previsualizing how your camera sees the world
differently from your eye is more important than a photography bag
stuffed with equipment. (See footnote.)*

Rick Doble

*No matter how expert you are technically as a photographer, if you do
not feel and feel deeply when you take a photo, your pictures will fail
artistically.*

Rick Doble

No tears in the writer, no tears in the reader.

Robert Frost

*A great photograph is one that fully expresses what one feels, in the
deepest sense, about what is being photographed.*

Ansel Adams

I believe that time is the most mysterious aspect of being alive and that photography is the art form best suited to capturing a sense of the passage of time.

Rick Doble

Photography, alone of the arts, seems perfected to serve the desire humans have for a moment - this very moment - to stay.

Sam Abell

Einstein established that the real world was a combination of space and time: a space/time continuum. Photography can capture this reality better than any other art form since a photographic exposure is a combination of space via the lens and time via the shutter, a recording of space/time.
Rick Doble



PHOTO: The camera can record a world the eye cannot see -- and in so doing transform the ordinary world into something extraordinary -- as in this long exposure night shot of lights in traffic. (Rick Doble)

Below the traditional minimum shutter speed of 1/30 of a second for sharp photos, is another world. It is an unexplored world of movement and light and flux which is as real as a bug in a microscope or as lightning tearing a hole in the sky.
Rick Doble

The invention of digital photography means that the quest for images of continuous motion (rather than sequential sharp frames of motion) can begin again -- a quest that was essentially abandoned 100 years ago. The feedback of the digital camera now lets a photographer enter this world and learn how to capture what the eye cannot see -- light trails of the passage of time.

Rick Doble



PHOTO: The cars on a highway left these trails of light in this long exposure shot, even though the cars themselves are no longer visible. (Rick Doble)

While digital photography has removed the previous time consuming tasks of developing film and making prints in the darkroom, it now requires many more hours of culling, selecting and editing until only a

*very few photographs have been distilled from the hundreds shot
during a session.*

Rick Doble

FOOTNOTE: Previsualization:

This term was coined by Ansel Adams -- it meant that photographers should be so familiar with their craft that they would understand how to both make the proper settings and also to understand how the film would see the scene -- so that the final output, such as a print would match what they had seen in their mind's eye. Even with digital -- and I might say especially with digital -- what you see with your eyes and what the camera sees can be quite different. And while digital photography makes learning previsualizing easier with the feedback of the LCD monitor, photographers still need to be able to previsualize the scene in ways that the LCD monitor will only confirm. For example, photographers need to be able to previsualize how a scene with a wide tonal range will be interpreted by the digital sensors that have a narrow tonal range. In another example, photographers need to previsualize how underexposing a scene will affect the image as a day setting can be made to look like night (called 'day for night' by film makers) and also dramatically change the rendering of color in the scene.

*To visualize an image (in whole or in part) is to see clearly in the mind
prior to exposure, a continuous projection from composing the image
through the final print.*

Ansel Adams, *The Camera*

10 Great Quotes About Creativity With Example Photographs (2011)

These are some of the best quotes I have found about the creative process and our work as photographic artists. They come from a variety of disciplines such as painting, sculpture, literature, and photography.

These quotes and the photographs that follow are from my book:
Experimental Digital Photography, Pixiq/Sterling Publishing, New York/London, 2010.

***The voyage of discovery is not in
seeking new landscapes but in
having new eyes.***

Marcel Proust, author



PHOTO: In this 8 second handheld exposure, the ordinary look of a highway at night is changed into an abstract ribbon of light. From my book, *Experimental Digital Photography*.

I suppose I am interested, above all, in investigating the golden ability of the artist to achieve a metamorphosis of quite ordinary things into something wonderful and extraordinary...

Eduardo Paolozzi, sculptor

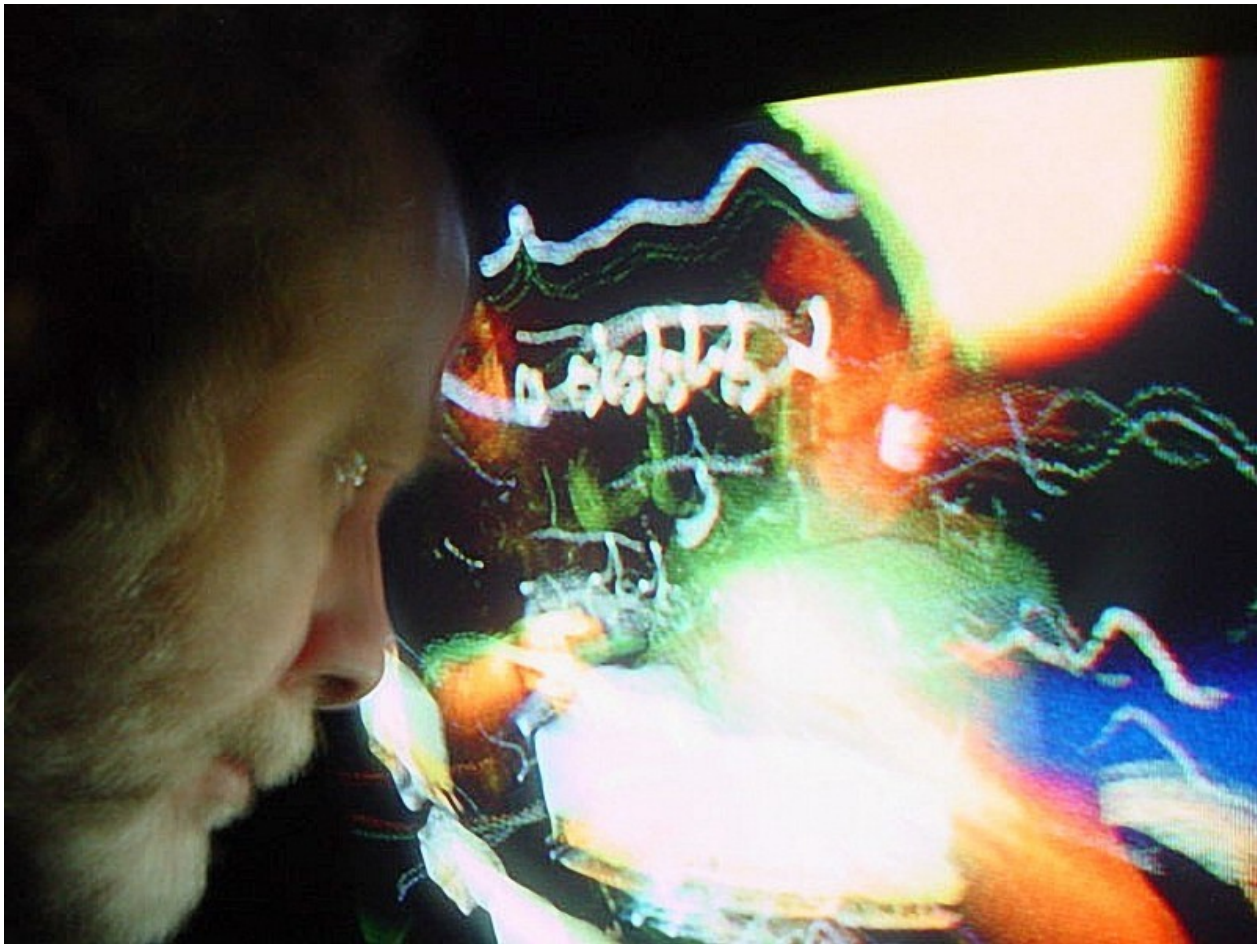


PHOTO: In this 4 second handheld self-portrait, my face is lit by the television and the picture on the TV is transformed by the long exposure. This is a relatively ordinary scene that has been changed by the long exposure. From my book, *Experimental Digital Photography*.

The 'mistakes' of yesterday...are today explored as interesting values in themselves, with great potential for evocative and expressive power.

Peter Pollock, author, *The Picture History of Photography*



PHOTO: In this 1/2 second handheld exposure, the figure of my wife walking into another room with daylight is surrounded by blue light, as I had set the white balance to tungsten. From my book, *Experimental Digital Photography*.

*To me photography is discovering rhythms,
lines and gradations in reality.*
Henri Cartier-Bresson, photographer



PHOTO: In this 8 second handheld exposure, the highway is transformed into a minimal composition of four triangles. The headlights light the highway in front at the bottom, the twilight sky is a dark blue at the top, the green grass is to the right and the dark forest to the left. The brake lights of cars ahead, the headlights of cars coming at me, and the yellow highway warning sign are at the center of the composition. From my book, *Experimental Digital Photography*.

The artist "lives at a time of great scientific and technological breakthroughs. These discoveries uncover new frontiers of perception and offer new representations of the world. Access to what was until then invisible becomes possible."

Paul Klee, painter



PHOTO: This 8 second handheld exposure reveals what the human eye cannot see: lights stream by my wife driving as we take an ordinary trip into town. From my book, *Experimental Digital Photography*.

He [Bragaglia - Futurist photographer] saw untapped possibilities in photography as a means of experimentation, and was particularly attracted to its potential for capturing the sensation of movement – rather than ...sequential stages [as photographed by Muybridge and others].
Caroline Tisdall & Angelo Bozzolla, authors, *Futurism*



PHOTO: This 1 second handheld panning shot of people walking shows how figures can look very different in movement and how the digital camera can capture that. From my book, *Experimental Digital Photography*.

*Figures were never for me a compact mass
but like a transparent construction.*
Alberto Giacometti, painter, sculptor



PHOTO: In this 1 second handheld panning shot, the woman's legs are almost transparent as is the dog she is walking. From my book, *Experimental Digital Photography*.

The joy of geometry – when you realize everything is right.
Henri Cartier-Bresson, photographer



PHOTO: In this 8 second tripod shot of rain drops on my windshield as I drove at night, the colors of the highway -- specifically the red of a stop light -- are distorted by the lensing quality of the relatively still water drops -- to make a geometric composition. From my book, *Experimental Digital Photography*.

*I think of my pictures as dramas;
the shapes in the pictures are the performers.*
Mark Rothko, painter



PHOTO: In this 1 second handheld panning shot, the people are walking forward, but each has on different colors that creates a kind of visual drama. From my book, *Experimental Digital Photography*.

*It is our function as artists to make the spectator see the world our
way – not his [her] way.*
Mark Rothko and Adolph Gottlieb, painters



PHOTO: In this 8 second handheld shot, I walked around a bowl of tomatoes that my wife had placed on the table. From my book, *Experimental Digital Photography*.

THE ART OF DIGITAL PHOTOGRAPHY



Top 10 Reasons Why Digital Photography Is Superior To Film (2011)

Digital cameras can now take photographs that go far beyond the capabilities of film

The Digital Photography Advantage

A TOP TEN LIST

listed from 10 to 1 in the style of David Letterman

NOTE: The basis of this list came from my book *Experimental Digital Photography*. It emphasized the advantages of digital for experimental photographers who needed to get instant feedback when trying new techniques and who also needed to take a large number of shots at a low cost. The basic points, however, apply to many other types of photography.

Also: I shot film for 30 years before I made the switch to digital. I have spent the equivalent of 5 solid years in darkrooms processing prints and negatives. I love film. But digital solves so many problems with my work that I have no desire to go back to film -- although I have fond memories of my film days.

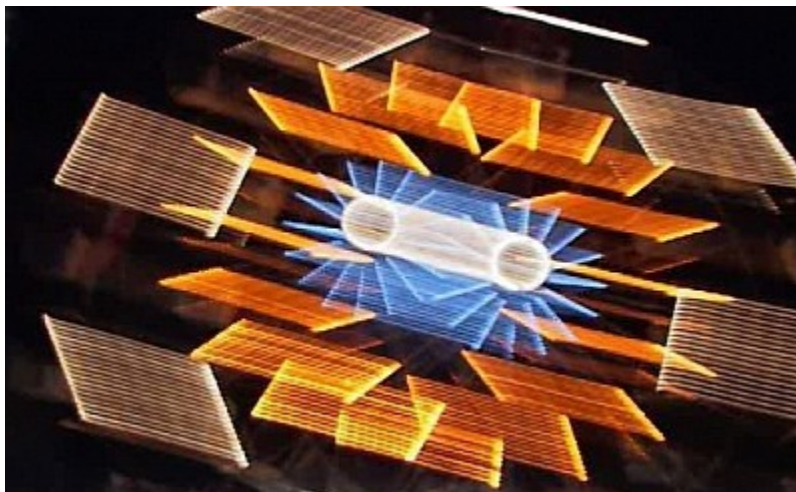


PHOTO: Ferris wheel, slow shutter speed digital photograph, 2000. This is a real shot, slightly cropped but with no other post processing, of a Ferris wheel in motion. See more about this series further on in this blog. This photo is from my book, *Experimental Digital Photography*.

Digital photography is superior to film photography because:

#10. Image Stabilization

DIGITAL: The stabilizer control on many cameras provides sharper photos and allows shooting at very slow shutter speeds. Image stabilization (IS) has become available for a wide variety of digital cameras.

FILM: For technical reasons film cameras do not have stabilizers in the body, which is relatively inexpensive, although expensive lenses with stabilizers are available.

#9. EXIF Data

DIGITAL: The EXIF data recorded with each photograph can provide invaluable information about how each photo was shot. Since this info is imbedded in the photograph, it can remain with the image and not be lost.

FILM: Film requires time consuming and cumbersome note taking, if you want to document camera settings. Plus the notes have to be kept in sync with the negatives or the note taking is pointless.

#8. Sharing/Sending On The Internet

DIGITAL: With the Internet, photographers can upload digital imagery in a matter of minutes to reach and share with a like minded audience anywhere on the globe. Also sending large files to editors or book publishers worldwide is easy due to the Internet.

FILM: The picture must be printed, then scanned in before posting on the Internet. With editors and publishers full sized hard copy needs to be mailed which is slow, expensive and time consuming -- or scanned in thus losing most of the benefits of a film photograph.

#7. Archival Storage And Protection

DIGITAL: Protecting photographs and making perfect archival copies that will not fade is now easy and cheap with backup hard drives and online backup services. Theoretically a perfect copy of a photograph could be preserved indefinitely by regular copying onto new hard drives.

FILM: Processing and then saving backup archival copies of black and white photographs is expensive and time consuming. And these will fade eventually over time. Color is even more problematic. "Color photographic materials are impermanent and are by nature unstable." (Wikipedia). In addition, for maximum archival life all, photographic prints and negatives must be stored at the correct temperature and humidity.

#6. Cataloguing

DIGITAL: Cataloguing, archiving and retrieving photos can be accomplished easily with software. Sorting through tens of thousands of photos is now fairly simple as is the creation of a sophisticated cross-referencing system.

FILM: Cataloging, and sorting through thousands of negatives and contact sheets is time consuming, difficult and requires storage space and viewing space along with careful organization.

#5. Darkroom Processing

DIGITAL: Hours formerly spent in the darkroom can now be done quickly and cheaply using software.

FILM: A film darkroom requires space, equipment and fresh chemicals. In addition processing is expensive and time consuming. Also these chemicals are not good for the environment.

#4. Color Photography

DIGITAL: The subtleties of color -- and of the color peculiarities of a particular situation -- can be quickly viewed, evaluated and adjusted in real time. Very different exposures, for example, can change a color composition dramatically.

FILM: While color film can be adjusted in the printing, unless you do your own processing, you will be at the mercy of the lab -- in addition it may be hard for you to previsualize the range of possibilities, such as making a darker or lighter print or changing the color balance to match one of several light sources.

#3. Cost Of Taking Photos

DIGITAL: Low expense means that dozens or hundreds of different shots, angles, exposures, techniques etc. can be attempted during a shoot at virtually no cost.

FILM: Film is expensive; prints are expensive. In addition they take up space which can be expensive and difficult to manage. Because of this a film photographer is generally more conservative, trying fewer possibilities and experimenting less when taking photographs.

#2. Learning New Techniques

DIGITAL: Learning and evaluating new photographic concepts and skills, such as handholding at slow shutter speeds, is much easier due to the instant feedback of the LCD monitor -- as difficult photographic techniques can be mastered rapidly.

FILM: With no instant feedback, a film photographer is flying blind. She or he will not know, often until days later, what the effect of a particular new technique was.

#1. Visualizing The Results Of Your Picture Taking

DIGITAL: The instant review and feedback of the LCD monitor allows quick corrections and adjustments almost in real time along with a real time preview before the shot is taken. Exposure, for example, is simple with digital. Take a test shot -- look at it -- adjust, shoot again, then adjust again. No more time consuming light metering.

FILM: While film photographers learned to previsualize after years of experience, it was easy to make mistakes. There were often times that instant feedback was needed. For example, when taking a flash photograph of a group, did one of the people blink when the flash went off, thus ruining the photo? This is something that is easy to judge with digital and impossible with film.

More About the LCD Monitor

Netplaces.com, a part of The New York Times Company, reprinted the following from my book *The Everything Digital Photography* book that I wrote four years ago: "Photography.com commissioned a detailed survey about the advantages of digital photography. The response showed that photographers overwhelmingly valued the increased control over the picture-taking process more than any other aspect. This control included the immediate feedback of the LCD monitor and the ability to manipulate and correct images at the time of shooting. And because of this control, the survey respondents said that photographers could now work with a precision that was previously not available."

In 1998 after I bought my first digital camera, I wrote an essay about the new potential of digital photography vs. film which included the following, "The digital camera allows flexibility, instant images and picture possibilities that did not exist earlier...Immediate feedback makes the digital camera a different kind of beast."

EXAMPLE OF THE DIGITAL ADVANTAGE: FERRIS WHEEL PHOTOS

Taken over ten years ago, this Ferris wheel series of photos would have been impossible with film. This progression of shots showed me the potential of digital photography and the power of instant feedback on the LCD monitor. In about an hour I went from a realistic shot of the Ferris wheel (the next shot in this article) to the abstractions and patterns created by the movement of the Ferris wheel and my own camera movement (see photo after next realistic shot). Each shot showed me unexpected effects on the LCD monitor which led to the next shot and allowed me to explore the possibilities in real time. Except for the very first shot at the beginning of this article (which I cropped slightly and nothing more), these photos are straight shots and undoctored with no post processing. These photos are from my book *Experimental Digital Photography*.



PHOTO: Ferris wheel photo, undoctored straight shot, by Rick Doble, 2000. From my book, *Experimental Digital Photography*.

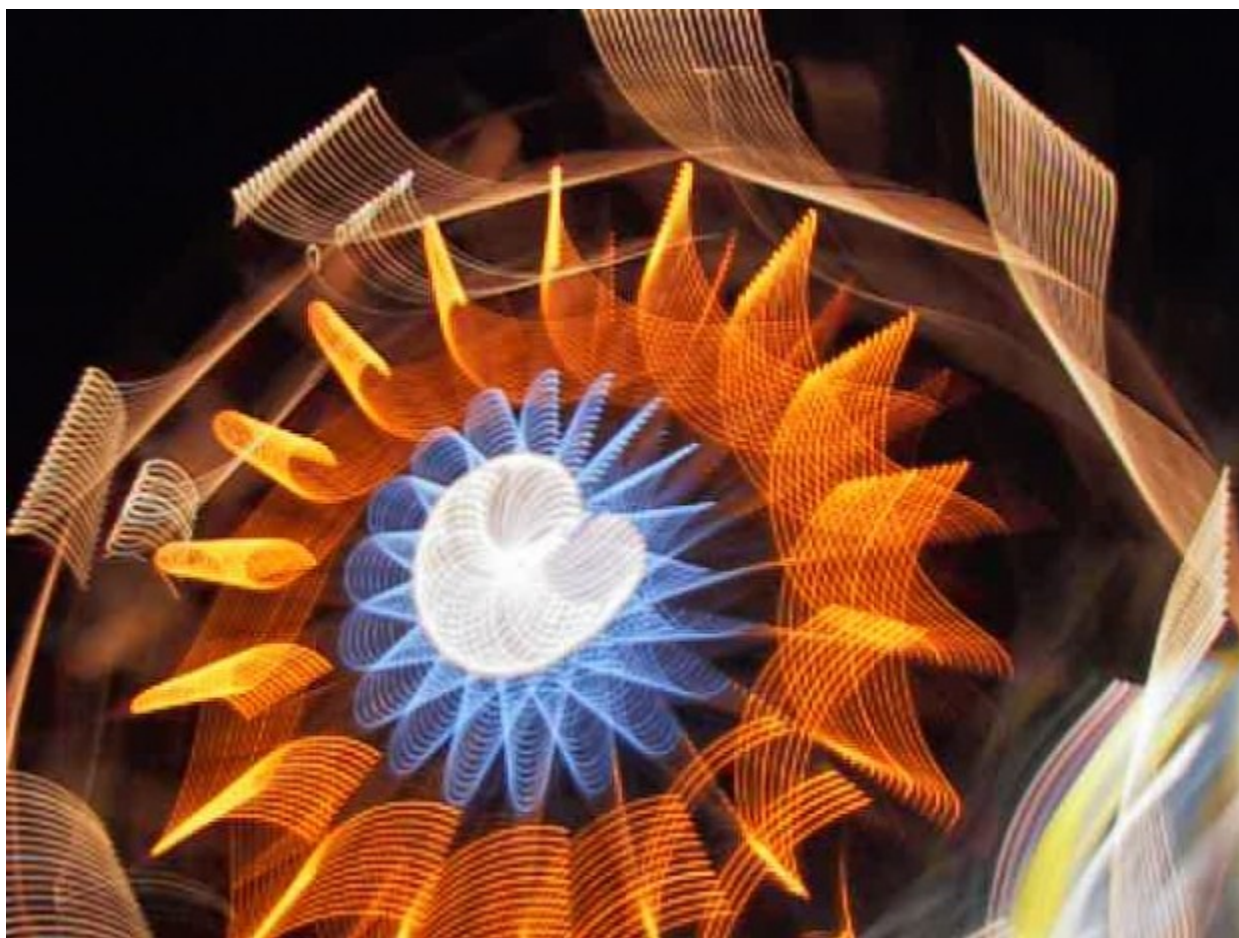


PHOTO: Ferris wheel photo, undoctored straight shot, by Rick Doble, 2000. From my book, *Experimental Digital Photography*.

The Biggest Mistake With Digital Photography (2011)

Great photographs may be lost in the avalanche of digital pics

Hey, I just shot 200 digital photos of musicians jamming last night at a local bar; do you want to see them all? No, of course you don't. 200 uncultured, unselected shots is too many.

Well how about 100, after I get a chance to go through them and throw out the bad ones? The answer, for me, would still be no.

Well, how about I take a few days, go through them carefully and pick out 6-7 best photographs? Would you like to see them then? My answer now would be yes.

The biggest mistake with digital is to show too many photos without carefully culling the very best. And this lack of critical judgment is hurting photography.



PHOTO: This abstract shot of brake lights in traffic, 8 seconds handheld, was culled from dozens and dozens of other similar images. (Rick Doble)

Note: In the film days, 'editing' meant selecting your best photos from all you shot. Now editing means processing the photo with software as in the term 'photo editor'. The current term for what used to be called editing is culling -- so I will use that term in this article -- but when Walker Evans says 'editing' in his quote, he means 'culling'.

Photography has always been a percentage art; in the past photographers talked about the ratio of film shot to pictures shown, such as 20 to 1. Yet today with digital, I am seeing many more photos with very little selection of the best work. Under this avalanche of pictures, the really good important shots are getting buried.

With the camera, it's all or nothing. You either get what you're after at once, or what you do has to be worthless.

Walker Evans (famous photographer best known for his work in the 1930s)

Think that there aren't that many photos out there? From 1994 to 2010 five billion photos (that's B) have been uploaded to Flickr.com according to Wikipedia. Today on Flickr over four million a day or close to two billion a year are being uploaded and that's just one photo sharing site. The Yahoo Directory of Photo Album Sites lists over eighty other such sites and that does not include social networking sites such as Facebook.

Now, admittedly most of these shots are personal and not seen by the general public, yet consider the number of photos in a Flickr group. The Flickr self-portrait group has almost 450k photos. If you were to look at every self-portrait for just 3 seconds, it would take you over 23 16-hour days (we'll let you sleep for 8 hours) to look at them all. Now lets say you wanted to spend a whopping 10 seconds looking at only the best ones, lets say 1 in 10 -- it would still take you about 8 full 16-hour days to see these best ones. And, obviously, no one is going to devote all their waking hours for 8 days to do this.

There are serious consequences to this mountain of digital photographs: Very little time is being spent looking at each photo as most are only viewed for a few seconds. As a result the very best photography is being missed. This is not good for the art of photography. The very best photos should be viewed for many minutes at a time -- as it often takes that long to catch the subtle aspects of good work.

Whose Fault Is This?

Is this the fault of photographers or the technology? My answer is both, but mainly it is the way that this technology is being used.

First: Digital is so easy and cheap it produces many more photographs than film. In addition they can be blown up quite large with no wait time -- unlike film that required a long lag time before blowups were processed plus the additional cost. So a direct result of the technology is that there are a ton of pictures.

I think too that photography is editing, editing after the taking. After knowing what to take, you have to do the editing.

Walker Evans

Second: Having said that, I believe it is the duty of each photographer to carefully look at their work and select only the best for display. This is a skill -- no doubt about that. And this is perhaps the one aspect of digital photographer that will take more time and work than film photography. But mastering this skill has many benefits. Photographers will learn to understand their visual strengths and weaknesses and thus be able to recognize and work on both. In fact one of the best ways to learn and grow as a photographer is to understand your own best work and then to build on it.

As a photographer who shoots primarily candid photographs, my rule of thumb is that I should spend at least twice as long culling photos as I did shooting them.

A Simple Method For Culling

A simple method for culling or selecting is as follows. Go quickly through everything you just took and mark any shot that strikes you. This simple process often eliminates two thirds of your shots. Next look at just those striking shots next to each other. When you look at good shots next to good shots, it becomes much easier to recognize the best imagery. Now go back to this second batch and select only the best of the best. In this process use whatever software you are comfortable with. You can copy these photos to a new folder, tag them or rate them -- depending on your software. I personally prefer to save my culled photos in a separate folder.

I think that a ratio of 30 or 40 pictures shot to 1 shown is not unreasonable for digital photography and with beginning photographers that ratio should be even higher. Obviously this is only a rough rule of thumb -- as some days you will get fantastic pictures shot after shot.

Lets say you took 200 shots. The first culling step will reduce the shots you are looking at to about 60. Then second step will knock down the number of shots to about 20. Next get some sleep. Don't look at them for a day or so. And when you review them days later, the very best will often jump out -- perhaps just 6 or 7. And these are what you should show others.

I also believe that groups, such as the Flickr groups, should restrict the number of photos that can be uploaded from an individual. I would suggest that no more than three be allowed per week.

Thinking Outside The Box: Impossible New Digital Photography (2011)

NOTE: I was invited to write this column for Pixiq.com because I am the author of the book *Experimental Digital Photography* published by Lark Books in 2010. This book was the result of a long personal quest to make photography more personal and more expressive. The following is my story.

When I bought my first digital camera in 1998, I knew I finally had the camera I had dreamed about in my hands. After 30 years of using film, my quest had ended. As an amateur astronomer, I thought of Galileo looking at the craters on the moon or the moons circling Jupiter with his new telescope -- because I believed a digital camera could also open new doors. I felt it could photograph a world never seen before and make visible what had been previously invisible.

My first digital camera was a Casio QV-100. It was no better than a throw-away snapshot camera by today's standards -- holding only 64 640X480 photos in its fixed memory while eating batteries at an alarming pace and costing hundreds of dollars.

Yet for the first time I could experiment and see the results of my trial and errors on the LCD monitor at the back of the camera -- while the subject was still in front of me. And then after reviewing the shot, I could go back and try again, slowly zeroing in on a unique image that was part of that particular moment.

As I kept pushing the envelope, I understood why digital cameras could do things that were virtually impossible in film. I say "virtually" because although it was technically possible for film to record these images, the photographer could not previsualize the resulting exposure, thus making these kinds of shots almost impossible.

Around the year 2000 I bought a more sophisticated camera and settled on the notion of taking pictures at slow shutter speeds, from 1/2 second to 8 seconds, handheld. I wanted to record the sense of energy that a blurred moving subject could create -- not the typical frozen shot that had, in a way, locked out the feeling of motion. And I wanted to work handheld as that gave me the freedom to quickly change my point of view. In addition I decided to work mostly at night since night let me shoot at longer exposures and often allowed me to "paint" motion against the darkness.



PHOTO: This and next photo: violinist at Mardi Gras, candid shot, Beaufort North Carolina, 2011. 2 second exposure handheld. (Rick Doble)

Also around this time, I settled on one theme that I still photograph to this day: musicians in the act of performing. The subject seemed like a fruitful one that I could explore endlessly and so I have chosen to show a series of these pictures as an example of my slow shutter speed techniques for this article.

Now I take photographs of all kinds of things at slow shutter speeds: my wife driving, self-portraits, people walking at night, festivals and rodeos -- mostly in candid situations under available light where I try to stay out of everyone's way. And since that year 1998 when I bought my first digital camera, I have taken tens of thousands of photographs. Most of them don't work but the failed shots often lead me to a time

when they do work. And for me these capture a sense of the moment unlike any other kind of photograph.



Then having a lifelong interest in modern art, I remembered that painters had tried to depict people in motion and even musicians in motion. So I did some research. What I uncovered was a fervent quest for the representation of movement in still imagery that had peaked around 1915 when motion pictures were perfected -- which caused this quest to essentially be abandoned.



PHOTO: The photographer who took this slow shutter speed photo which showed the motion of a musician as he played was associated with the Italian Futurist movement 100 years ago.
Bragaglia's violoncellist, 1913, Anton Giulio Bragaglia. (commons.wikimedia.org)

There was one movement in particular: Italian Futurism. The artists associated with this movement created paintings and even photographs that were similar to what I could capture with digital photography at slow shutter speeds. Another movement, Cubism, also created work similar to my photographs, but the Cubist concern was a bit different; it looked at a person or object from several perspectives at once.

All things move, all things run, all things are rapidly changing. A profile is never motionless before our eyes, but it constantly appears and disappears.

From the Technical Manifesto of Futurist Painting, 1910

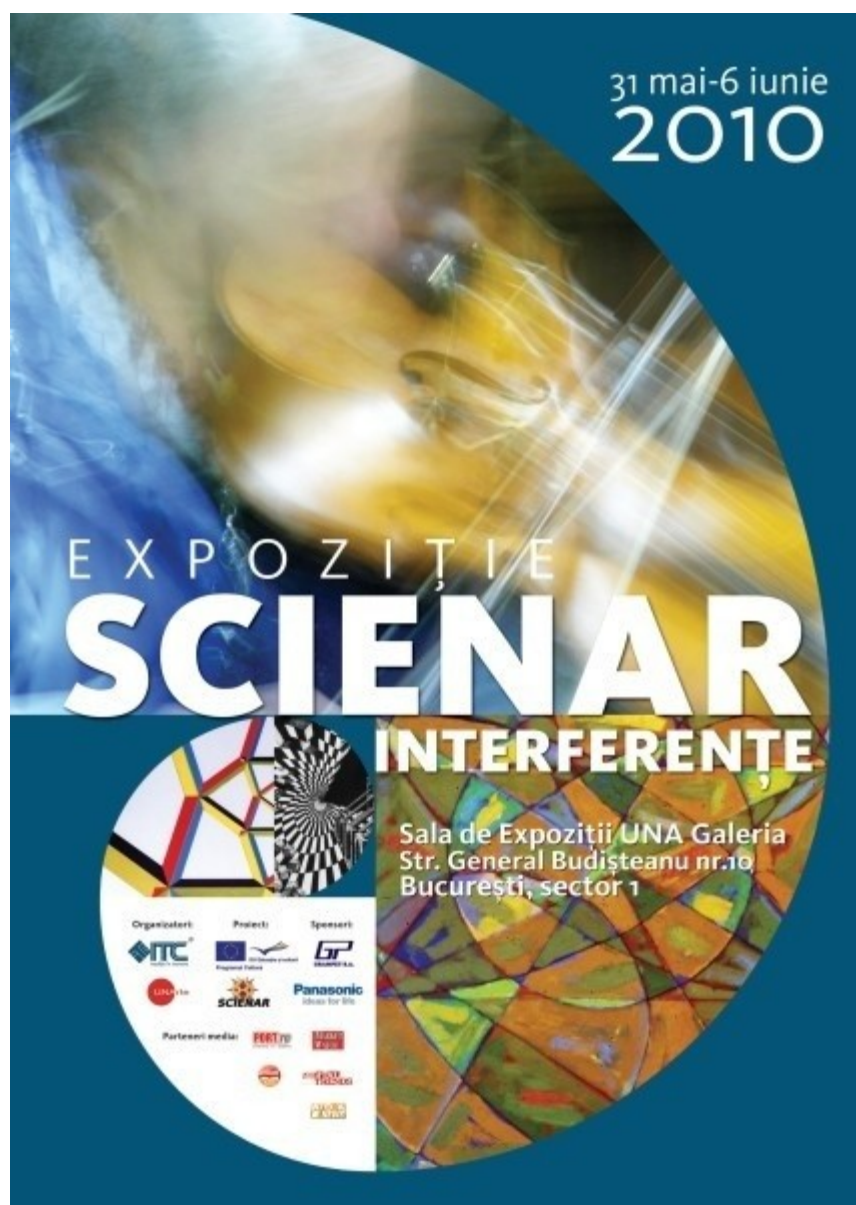


ILLUSTRATION: *Le guitariste*, 1910, Cubist painting by Pablo Picasso.
(en.wikipedia.org/wiki/File:Le_guitariste.jpg)

In 2003 I ignored my fellow photographers who shook their heads when they saw my fuzzy pictures; I posted my blurred photographs of motion along with my ideas on my website (www.rickdoble.net). Then four years later to my astonishment, this led to my work being presented in Europe. Today my work has been shown at a number of conferences, exhibits and publications in Europe and the work on my website led to the publication of my book *Experimental Digital Photography* by Lark Books in 2010. My work has now been seen in Italy, Romania, Slovakia, U.K. and soon in Portugal and my book is in its second printing.

At the *Generative Art Conference* in Milan Italy in 2009, two Italian Professors, Marcella Giulia Lorenzi, Mauro Francaviglia and I offered this presentation: *The Future of Futurism: Experimental Digital Photography and the Futurist Art Movement*.

In the *Journal Of Applied Mathematics*, I and the same two professors explored the scientific aspects along with the artistic aspects of this kind of imagery in an article entitled: *Motion And Dynamism: A Mathematical Journey Through The Art Of Futurism And Its Future In Digital Photography*.



POSTER: EXPOZITIE SCIENAR INTERFERENTE, exhibit about science and art, Bucharest Romania, 2010. My violinist image is the large photo at the top of this poster.

So if there is a lesson to my own personal quest, maybe this is it: Follow your instincts and things might -- although there is no guarantee -- just work out.

EARLY ESSAYS ABOUT THE ART OF DIGITAL PHOTOGRAPHY



Thoughts About Using A Digital Camera (1998)

My new Casio camera, I talk about in this essay written in 1998, took postage stamp sized photos, ate batteries, and required a lengthy and complicated download from the camera to the computer.

A digital camera is more than a portable, glorified scanner. A camera is something quite different. As a photographer for over 30 years, I am very excited by the possibilities of direct digital images and the Casio QV-100 camera that I now own.

Digital technology leaves much to be desired at this point in its development: the tonal range is narrow, the contrast is too high, the colors are not true, the film speed is slow and the resolution is coarse. A traditional film image produces a much higher quality picture. It may be 20 or 50 years before digital photography can compete with a film silver image at a comparable price.

So why am I so excited? The reason is simple. This camera allows me to do things that were impossible before.

But before I go into that, let me explain about the power of the photographic image. A photograph is not great because of its technical qualities. While tonal range and good resolution are desirable, many of the finest photographs are grainy and far from perfect. Cartier-Bresson, who many think was the best of all photographers, started using a 35mm camera when few others did not because of its technical qualities but because of its portability and versatility. The 35mm camera allowed him to take spontaneous pictures which captured life in its full-blooded movement. The digital camera allows flexibility, instant images and picture possibilities that did not exist earlier.

Since there is essentially no film cost, the digital camera allows you to shoot whimsically over and over until you get it right. The cost never enters into your thinking.

The real-time visual image which shows you almost exactly what you are getting, is a photographer's dream. You see the picture in color on an LCD screen before you take it and also immediately after you take it. You can shoot for ten minutes, review what you just shot, then shoot for another ten minutes. This immediate feedback makes the digital camera a different kind of beast.

***This immediate feedback makes
the digital camera a different kind of beast***

Also with the Casio I can turn the lens around 180 degrees so that I can take self-portraits and see accurately what I will get at the same time. Again this was impossible

before. Want to see quick blow-ups of the pictures? Just plug the camera into a TV and browse through the images on the TV screen.

Want to exhibit your work? Just put these pictures directly on the Internet which is the greatest gallery imaginable for a photographer. The gallery is accessible to anyone in the world who has an Internet connection, 24 hours a day at very little cost.

For computer literate people, the digital camera is much less expensive, more spontaneous, easier to work with and easier to exhibit.

For those of us who have gotten tired of the road (the rut?) that academic photography has taken, the black and white overworked images of super fine resolution and large format, the digital camera brings photography back to life, back into the streets.

In addition, contemporary photographers have become overly concerned with the price of their photographs not the power of what they have to offer. Digital images do not have the same commercial value which in our materialistic age means they have less value. I welcome an art which takes us away from dollars. But don't worry; if the art is truly great, galleries will find a way to attach a price tag to it.

***I feel that the deepest promise of still photography
is a captured image of pulsing life***

I feel that the deepest promise of still photography is a captured image of pulsing life. Also still photography can and should add to and extend the tradition of fine art. The digital camera and digital photography may bring us back our senses.

P.S. A principle concern of contemporary academic photography has been the length of time that a photographic image will last. Black and white photos have a much longer life than color images so many schools and museums rejected color photography. However, digital photography has, essentially, an infinite life because information about the image is saved on a computer disk not the image itself. While color monitors may fade, the digital photo file can always be copied onto a disk or put on a CD-ROM and then displayed on a new color monitor.

Is Digital Photography The New Expressive Visual Art? (1999)

Photo-Expressionism?

NOTE: This 12 year old essay was translated into Italian in 2011 at the prestigious www.cultorweb.com website and was seen as being a prophetic statement of where digital photography was headed. This essay was written in 1999, when digital cameras were not common and were quite primitive -- postage stamp sized photos, tiny in-camera storage, cumbersome transfer of files to the computer, etc. At that time I suggested the term 'photo-expressionism' (my term, I coined it) which has since been picked up by a number of people; there is even a website with that name.

For the sake of simplicity I will speak of film instead of electronic light sensitive material or other term for electronic photographic media or traditional film.

Digital photography could be a major art form in the next century. It may be the culmination of the development of photography. I have been working with a very simple Casio QV-100 camera for over a year, and I am still amazed at the variety and depth of imagery I can achieve without a flash or a zoom lens. Of course I will eventually get a more sophisticated camera, but not until I have exhausted every aspect of this basic Casio.

Many people do not realize and even experienced photographers can forget, that photography is all about light. Photography literally means light (photo) writing (graphy). The action of light on film (*1) creates the image.

As I used to teach in a basic photography class 25 years ago, photography is not about objects or people or scenery. Rather it is about how the light reveals those things. As any beginning photography student knows, a cube can be lighted so that it almost disappears or so that it is virtually three dimensional. The key is the light.

Color photography is a relatively recent invention. Taking pictures in color means that it is not only the intensity of the light, but also the color of the light that creates the image. Yet color is not simple. For example, a scene may include several light sources which have their own particular hue. There are many subtle aspects to working with color photography.

In the middle of this century, the single lens reflex (SLR) camera was a technical breakthrough. For the first time the photographer could see exactly what the lens saw. This solved a number of problems such as parallax. Digital photography goes one step further and lets the artist see what the film sees almost in "real time" on a LCD screen(*2).

Digital photography is a radically different kind of photography, because the photographer can finally see what the film sees. This is more important that the ability to manipulate the image in a computer.

This is especially important in color photography because different light sources (with different color temperatures) and subtleties of color may be seen differently by the film than by the human eye. For example, various street lamps can be seen by film as having unusual colors.

I sometimes like to add flare to my pictures which can produce a rainbow of colors. I have found that most lights have a precise point where the camera must be aligned to get the full effect of flare. Before the digital LCD screen this kind of exact positioning was impossible.

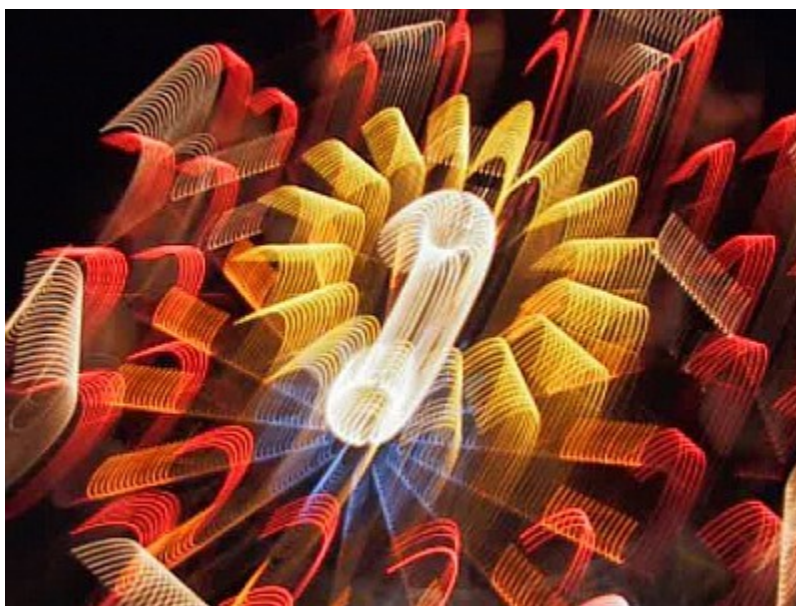
For a variety of reasons the real time LCD screen lets a photographer "paint with light," light that is in the real world. While some of these effects could be approximated with the aid of a computer, images created in the real world have a vitality to them that a computer manipulated image cannot approach. It is the difference between the real and the artificial. I believe the real world has much more power. For example, the true story of the Titanic grabs us more than the fictional story of a luxury liner disaster such as *The Poseidon Adventure*.

There is another aspect to this LCD screen: it allows a photographer to review pictures that he or she just shot. Again this is a radical development. Immediate feedback is vital to learning.

In a personal note I have spent years trying to shorten the time between taking pictures and seeing the developed images. I have shot black and white slides and color slides that I processed immediately, along with instant Polaroids. When not using any of these techniques, I developed negative film on the same day it was shot and made contact sheets to get some idea of what I had just done.

There are many psychological studies that point to the importance of feedback in learning. People who aimed bullets at a target, but were not told where the bullets hit until later, could not learn quickly. However, those who were told immediately improved rapidly. While this seems obvious, it is often forgotten.

Digital photography allows an artist to learn quickly in new situations. For example, I took pictures at a fall carnival and wanted to get a sense of movement with blurred images. When the pictures did not turn out as I hoped, I started to move the camera in relation to the Ferris wheel. In less than one hour I went from traditional night shots to some of the most unusual pictures I had ever taken. The immediate feedback was crucial.



The bottom line is this: in the past still photography couldn't get no respect, color photography in particular. It was rarely considered a valid art form. It was thought of as a mechanical process, or a trade rather than having any potential for an artistic vision. Of course, those of us in photography knew better.

Now with digital photography, those with artistic ideas can realize their imagery in strikingly individual and unique ways. A full understanding of light and color means that, in the hands of a master, modern photography is a rich, complicated, sophisticated and expressive art form.

My own personal quest in photography involves a number of "purist" notions added to the capabilities of a digital camera: I try to do most of my work at the moment of taking the picture rather than later with a computer. This vital instant is the "decisive moment" of snapping the shutter as stated by Henri Cartier-Bresson. I believe that the most powerful images are spontaneous and not reworked. This gives them a vitality which is similar to the difference in music between a live concert and a studio recording. As a result, I rarely crop; I rarely manipulate the image in a computer graphics or paint program or in Photoshop. (Notice the word rarely; never say never.) I do use the traditional photographic controls of adjusting brightness, contrast, color balance and sharpness. This is all I need to achieve my effects.

I would like to propose a new term for this photography. The term is "photo-expressionism." (*3) By this I mean photographic imagery that is both personal and expressive, photography that is as artistic as the paintings of Vincent van Gogh, Edvard Munch (The Scream), or Jackson Pollock.

I suggest the term "photo-expressionism" for digital photographs that are as personal and expressive as the expressionist paintings of the recent past.

FOOTNOTES:

- *1. For the sake of simplicity I will speak of film instead of electronic light sensitive material or other term for electronic photographic media or traditional film.
- *2. The LCD screen is an approximation and is separate from the electronic film. All viewing screens show less than the full image (also true for SLRs), the resolution is much lower than the final image, and the LCD may see light somewhat differently than the electronic film. There is also a delay in the "real time" display. If you snap the shutter in a fast moving situation, you will find you get the next frame, not the one you thought you got. In short you have to learn to anticipate. However, the approximation is good enough so that a photographer can learn to work with it. As in all photographic processes part of the art is being able to accurately guess how the final image will turn out. There is only one true image that shows you exactly what you shot; that is the final output form for your image. A picture displayed on a computer monitor or on the Internet will look quite different than one printed out on the best quality photographic paper or reprinted in a magazine. Photographers find themselves unconsciously adjusting their imagery to match the final output form.
- *3. Photo-Expressionism: I derived this term from two movements in painting: Expressionism as practiced by German and other painters (Kirchner, Klee, Kandinsky) at the beginning of the century and Abstract Expressionism as practiced by artists in New York in the 1940s and 1950s (Pollock, Rothko, Frankenthaler) along with others around the world. Also I realize that van Gogh is not strictly an Expressionist, yet his work is considered to be one of the foundations of Expressionism by virtually all critics. Clay Riley, the director of the local arts council, the Carteret Arts Council, looked at my work and said that I was "action painting" with a camera. That thought started me thinking about the idea of photography as an expressive medium.

Why Photography Is A Very Different Art Form (2000)

Why photography and digital photos are an important art form

Photography can't get no respect when it comes to fine art. The painter painstakingly adds paint to every tiny piece of the canvas, slowly building areas to create just the right effect. It might take weeks or months!

But a photographer comes upon a scene, clicks a shutter and bingo a complete picture has been created. The assumption is that a photographer simply goes into the darkroom, processes the negative or downloads the digital file, then tweaks the picture slightly to create a finished print or image. Photography can't get no respect!

Like all popular conceptions there is a little truth and a lot of misunderstanding. My point of view is that photography is a completely different way of approaching art and imagery.

The reason is simple. Photography deals in wholes and not in pieces. When a photographer takes a shot, he/she takes a complete picture all at one time. If the photographer does not like that image the choice is usually NOT to rework the picture in the darkroom but rather to retake the whole picture again from a different angle, or distance, or with a different lens, or at a different moment or with different lighting, etc. But most often the photographer is dealing with a complete image. Anyone who has done darkroom work knows that trying to radically change an image is a lot of work that often fails.

To say it another way: painting builds an image from the bottom up; photography works from the top down

The moment of snapping the shutter in photography is so important, Cartier-Bresson -- perhaps the greatest photographer -- labeled it the "decisive moment," the moment when all the picture elements come together to make a whole and complete image. Photographing an image at the moment also creates an indefinable sense of reality, the sense that a real point in time was actually captured. It can take hours and/or a number of sessions before the right whole picture is achieved. This is the way a photographer works an image (vs. the painter): shooting, reshooting and editing from perhaps hundreds of whole images, looking for the right one to select and display.

Thinking in wholes instead of pieces is a different way of thinking, especially in the West. We are taught to break things down into pieces (Descartes), to dissect things, to analyze situations and conditions, to think like a production line, but not to think in

wholes. Thinking in wholes makes photography unique in many ways -- not just as an art form but as a way of seeing and thinking.

While the digital age allows more manipulation than ever before in photography, those who choose to think in wholes and work in wholes can still do so. And let me be clear. I am not saying you should not think in parts and pieces, but rather that photography gives an artist the ability to think in wholes, an ability which is rare today.

For myself I have generally emphasized a photography that is unmanipulated other than using a few traditional photographic techniques. Virtually all my photographs are not cropped and a digital paint brush, spray can, or the use of special effects is never applied.

Recently I have created a series of more complex digital pictures that were processed using a number of traditional photographic techniques translated into the digital framework. I used solarization, adjusted brightness and contrast, changed lightness, hue, and saturation, and bumped up shadows and highlights. All of these are traditional darkroom techniques in a digital form. However, I let each effect transform the ENTIRE image. I was still thinking in wholes. I tried to bring out outlines when an outline was barely visible. Yet I did not go in and add a line that was not there or emphasize an area with a brush.

This distinction may seem unimportant to some, but to me it is like night and day. When I work with a picture I see the entire image at all times. The pieces and details must work together to create one work, and no whole image can be strong if the details are weak. It is why I love photography and why I keep finding new visions in the most ordinary places for the last 30 years.

A Touch Of The Savage (2002)

This artist *"has fire -- rather like a van Gogh painting -- a touch of the savage -- good for art."*

Quote from the film *Humoresque*, 1946

...the artist must be forgiven if he regards the present state of outward appearances in his own particular world as accidentally fixed in time and space. And as altogether inadequate compared with his penetrating vision and depth of feeling.

Paul Klee, *On Modern Art*, 1924

Everyday life is only an illusion behind which lies the reality of dreams...It is not only MY dreams. My belief is that all these dreams are yours as well. And the only distinction between me and you is that I can articulate them. And that is what poetry or painting or literature or film making is all about. It's as simple as that.

Quote from Werner Herzog about Director Herzog filming his movie *Fitzcarraldo*,

quote from the documentary movie *Burden of Dreams*, 1982

It is colour not locally true from the point of view of the delusive realist, but colour suggesting some emotion of an ardent temperament...Hokusai [ED.: a painter known to vanGogh] wrings the same cry from you, but he does it by his line, his drawing, just as you say in your letter 'the waves are claws and the ship is caught in them, you feel it.' Well, if you make the colour exact or the drawing exact, it won't give you sensations like that.

Vincent van Gogh to his brother Theo

Letter 533, Arles, 8 September 1888

Computers allow us to create perfect copy. Type is justified, everything lines up, photographs are precise. While this exactness may be good for making brochures, it is not necessary or even desirable when it comes to making art.

Computers and digital technology can be very dangerous and seductive because they allow endless manipulation, an endless quest for perfection. If an artist does not have a clear idea of what he or she is after the image will probably fail.

In the 1950's the New York Abstract Expressionists created a uniquely American art that had a somewhat unfinished look. It was raw and crude. The excitement of Jackson Pollock's paintings or the graphic images of Franz Kline came in part from

their rough and ready appearance. When you see a Pollock painting, you want to touch the paint; it feels a little messy -- it is so real, so tactile, so sensual.

Good or great art is more than technology or technique, although these can be important contributing factors. To create truly meaningful art, the artist needs to have a vision of what he or she is trying to say or a sense of the effect that the art should have on viewers.

My particular vision is to create a digital photographic art which is a playful and spontaneous -- a bit rude, a bit crude and in your face. I want it to feel like real life, like cinema verite. I want the viewer to know that I took a picture of a real scene at a specific time under a particular light and with my feelings of the moment.

Although my digital photographs are of the real world, I like to push the digital process to its extreme limits with various techniques such as low light exposure and camera movement. As I have written before, digital photography has the potential to be a personal expressionist art form, that allows individuals the means to say things visually that have been impossible before.

The French thinker Julia Kristeva has said that today there is a threat to our psychic space and that people do not have a means of expressing what is happening to them. She said that there are "*new maladies of the soul*." Modern humans have a problem "*expressing problems in words and images*."

With the right attitude, digital photography has the power to express our deepest and most personal dreams. And I believe that it has the ability to create art work which is as moving and beautiful as the cave drawings at Lascaux or the paintings of van Gogh.

Poem

Note: In twilight the large pixels changed back and forth from color to darker color as the sky faded and as I framed the scene for my next shot on the coarse LCD screen of my early crude digital camera.

"I often think the night is more alive and more richly coloured than the day."

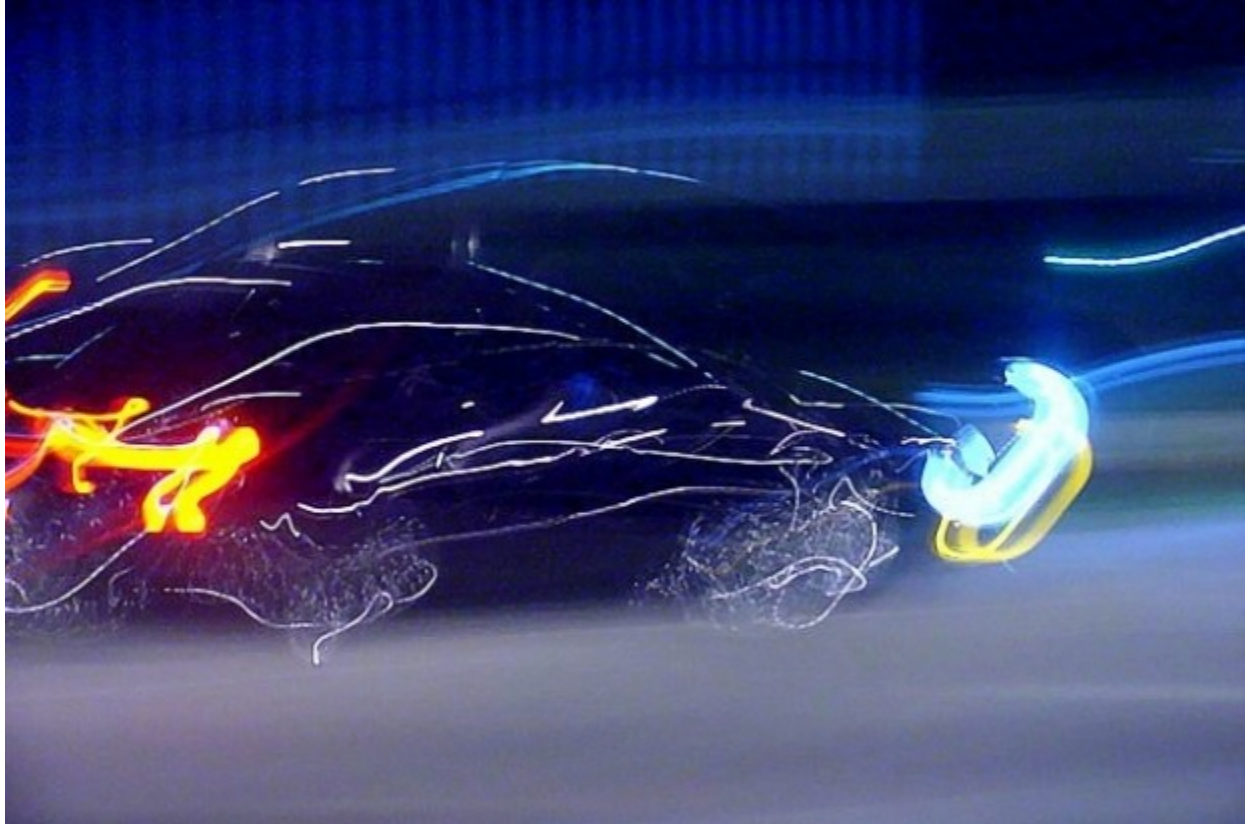
Vincent van Gogh to his brother Theo

Letter 533, Arles, 8 September 1888

REAL TIME (1999)

**On the edge of darkness
I have seen the twilight sky
do it's digital dance
in real time --
pixels pulsing from
cerulean blue to black
on my LCD screen --
van Gogh's deepest colors
outside his cafe in the evening
or his starry starry night.**

VISUAL ART & DIGITAL PHOTOGRAPHY



Visual Art And Digital Photography (2011)

Realism and personal expression

It is very rare that an art form comes along that is both realistic and accurate but also personal and expressive. In the past these two were seen as opposite poles that were incompatible. Yet slow shutter speed digital photography -- or long exposure photography if you prefer -- can be just that. Let me explain.

At slow shutter speeds a picture may be blurry, or show movement but it is an accurate photographic record of what occurred during that 2 second or 8 second exposure. At the same time the way the photographer goes about shooting is very personal -- and it is unlikely that two photographers shooting the same subject at slow shutter speeds would take photos that looked the same. This is because when movement is added to a photo, the personal touch of the photographer comes into play.

Slow Shutter Speed photography (SSS) adds a number of variables to traditional photography. To keep it simple, I emphasize that there are three main variables -- yet in addition there are plenty of other variables that are related to these three. The photos in this article are from my book: *Experimental Digital Photography* published by Lark Books/Sterling Publishing.

THE THREE MAIN VARIABLES ARE:

== Subject Movement:

To isolate this put the camera on a tripod or hold it rock solid still in your hands and turn on the optical image stabilizer -- so that the only movement recorded is that of the subject such as a musician playing a guitar during a slow shutter speed setting -- e.g., 2 seconds.



PHOTO: In this example of subject movement, the camera is rock solid. You can see subject movement in the motion of my wife's arms and also in the pedestrian walking outside the cafe on the street. (Rick Doble)

== Camera Movement:

To isolate this move the camera while taking photos of still lights, buildings, furniture -- anything that does not move -- and all that will be recorded will be the path the camera took in its movement across these still objects during a slow shutter speed setting -- such as 8 seconds.

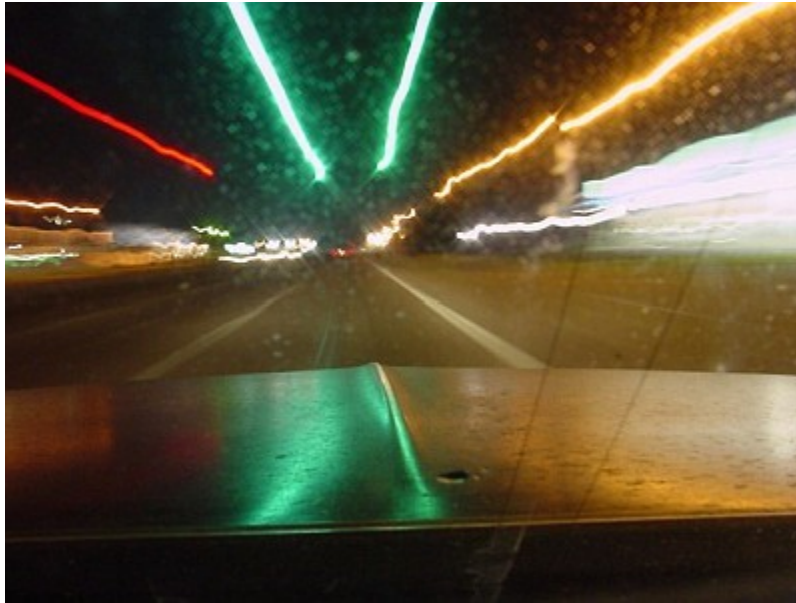


PHOTO: In this example of camera movement, the camera is mounted on a tripod on the dashboard of a moving car. The hood of the car is quite sharp since it is moving at the exact speed of the camera, but the traffic lights register as streaming lines. (Rick Doble)

== Combined Subject And Camera Movement:

This is where the fun really starts and where realistic and personal expression definitely cross paths. A simple example is to pan the camera in sync with a moving subject which in turn blurs the background; this will record a picture that gives a sense of motion. Yet with this seemingly simple technique there are an unlimited -- and yes, I can do the math -- number of possibilities which will be very personal but also accurate and realistic.



PHOTO: In this example of combined subject and camera movement, the camera pans with the movement of four people -- each of whom is walking slightly differently. (Rick Doble)

MORE VARIABLES RELATED TO THE ABOVE THREE:

As the Italian Futurist painters pointed out years ago, subject movement involves two kinds of movement:

Absolute movement is the general direction in which the subject is moving, whether the subject is a person walking, a dog running, or a car accelerating.

Relative movement is the internal movement within a subject's motion such as the wheels on a car, the legs of a dog, or the arms that move as a person walks. (Quoted from my book, *Experimental Digital Photography*, Lark Books/Sterling Publishing.)

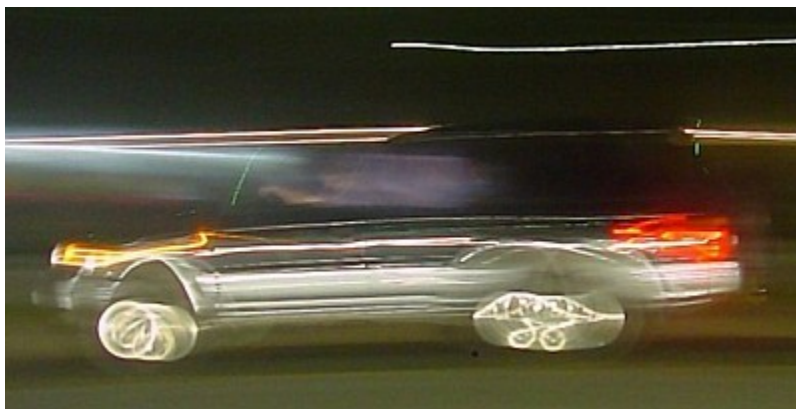


PHOTO: Relative motion is very clear in this shot. The wheels of this car are moving in a different manner than the general forward direction of the car (absolute movement) and therefore register differently on a photograph. (Rick Doble)

ADDITIONAL EFFECTS: GHOSTING

Ghosting is one of those wonderful slow shutter speed effects. Instead of solid bodies, people are often registered as wisps of smoke or a transparent pathway. The background with slow shutter speed digital photography makes a huge difference.



PHOTO: The people behind the two standing figures all moved quickly when this shot was taken -- so only a ghostly trail of their presence was recorded. (Rick Doble)

== Ghosting: Dark Backgrounds

A dark background will often result in 'ghosting' where multiple images of the subject can be recorded as the subject moves against that background.



PHOTO: In this dark background shot with a slow shutter speed exposure, this guitar player moved against a dark background and produced multiple images of her face, not unlike a multiple exposure. (Rick Doble)

== Negative Ghosting: Light Backgrounds

With a light background, a photographer can get the opposite effect from a dark background -- in this case the subject's movement is often erased and only those areas that did not expose the light background remain.



PHOTO: In this light background shot with a slow shutter speed exposure, the guitar player's face is somewhat erased when he moved. Only those portions of his face that did not uncover the light background are clear. (Rick Doble)

ADDITIONAL EFFECTS: LINE

The movement of the camera often creates line. As painters know line is a key element in drawing or painting.

By moving the camera, points of light become lines and these lines have force and direction which become part of the composition.



PHOTO: Camera movement with a slow shutter speed exposure often creates line, as in this shot of my wife driving past red lights. The lines created give off a sense of force and direction.
(Rick Doble)

IS THIS REALLY PHOTOGRAPHY?

Now I realize that some people have questioned whether this kind of photography is really photography, but quite simply photography is the action of light on light sensitive material, nothing more -- and thus what I have described really is photography. Others might question whether it is realistic -- since this approach may not produce a sharp image: well no greater minds than Einstein and Picasso asserted that the world we see and assume is often quite different from reality. The kinds of imagery I have described in this article depict one aspect of this unseen reality which digital photography can now make visible. See quotes about this unseen reality next.

The artist "lives at a time of great scientific and technological breakthroughs. These discoveries uncover new frontiers of perception and offer new representations of the world. Access to what was until then invisible becomes possible."

Paul Klee, painter

Reality is merely an illusion, albeit a very persistent one.

Albert Einstein

The age-old quest of both art and science has been to seek new representations of phenomena beyond appearances. The main lesson of Einstein's 1905 relativity theory is that in thinking about these subjects, we cannot trust our senses. Picasso and Einstein believed that art and science are means for exploring worlds beyond perceptions, beyond appearances. Direct viewing deceives, as Einstein knew by 1905 in physics, and Picasso by 1907 in art.
Arthur I. Miller, *Einstein, Picasso: Space, Time, and the Beauty That Causes Havoc*

Visual Art & Digital Photography: Part 2 (2011)

Space, Time And Memory

How experimental digital photography can evoke a sense of remembrance

100 years ago the Italian Futurists were concerned with creating art that involved space-time but in addition involved the "interpenetration of space-time and memory" as stated in the book, *The Museum of Modern Art: The History and the Collection*.

This is a concise description of reality, at least human reality as it is understood today. We all live in the moment and can do no other. Life is lived second to second with no turning around; the passing moment and every person and object exists as part of a space-time continuum that moves forward and never back.



ILLUSTRATION: Unique Forms of Continuity in Space, 1913, bronze sculpture, Umberto Boccioni. (commons.wikimedia.org)

*I want to render the prolongation of objects in space.
I want to model light and the atmosphere.
I want to transfix the human form in movement.
I want to synthesize the unique forms of continuity in space.*
Umberto Boccioni, Italian Futurist artist

Yet everyone and everything has a past which determines the present and also determines how that present is understood.

*Life can only be understood backwards;
but it must be lived forwards.*
Soren Kierkegaard

The addition of memory to an art depicting space-time is intriguing -- because memory, especially detailed memory, is particularly human and a critical aspect of consciousness, which many see as the most human of human characteristics. The concept of time is quite different for the conscious mind. I like to think of it as "meta-time" -- 'meta' meaning time beyond the standard moment to moment existence of time, beyond now -- an almost different dimension of time.

We all work with meta-time every day, yet think little of it. In our minds we can move some things around in time, forward and back, unlike real time -- but there are rules. For example, I can drink a cup of coffee before I go to work, or drink that cup of coffee when I get to the office. I can accomplish an important step in a project today or next week, but I had better not wait until the week after because other aspects of the project need that step to be accomplished first.

Memory is a key component, perhaps the crucial component, of meta-time and our ability to manage, shape and organize time. Because of memory we can learn skills, recall what we have accomplished so far in a task, and build on experience. But beyond the cataloging of our past, it also remembers things that happened in a unique way. It remembers occurrences as events, not measured by seconds or minutes or hours, but rather as an internal experience. This aspect of memory comprehends time beyond the now moment and creates depth, dimension and perspective.

*The rhythm of the duration of an event is an experience of our
consciousness whose beginning and end is not determined by the
clock but by its duration within our consciousness, and once there, it
has no other dimensions and no other limits save the limits of the
experience itself.*

Naum Gabo, *Divers Arts*
(a principle founder of the art movement known as
Constructivism around 1920)

Flash forward to art in the 21st Century. I believe, oddly, that static art, such as painting, photography and sculpture, can best depict this sense of reality, this

'interpenetration of space-time and memory' the Italian Futurists wanted to capture 100 years ago.

The problem with the time arts such as music, film and dance is that they sweep us along with their power, but don't let us stop and gaze -- unless you hit the pause button.

Static unmoving art, such as a photographic print, allows the mind of each member of the audience to contemplate the work and by doing so to bring their own memories to that work. In my photography, for example, I try to show the reality of the 'interpenetration of space-time and memory' by taking photographs with slow shutter speeds that reveal blur and movement, i.e., the intensity and rhythm of the moment in time. But I also try to add the human elements of emotion and sensation. I believe that when I feel deeply, I can communicate this to a viewer.

*No tears in the writer,
no tears in the reader.*
Robert Frost

So, for example, when you see one of my photos of a musician playing, I want you to have a sense of the moment when this guitar was being strummed, to almost hear the sound and to feel the beat of the rhythm -- and you will do this by bringing your own memories to bear, your own memories of deeply felt music in times past.

*...to know things in real time, we must bring our memories from past
time into the present.*

Art History Definition: The Fourth Dimension
By Beth Gersh-Nesic, Contributing Writer (arthistory.about.com)



PHOTO: Drew Wright playing the guitar at Backstreet Bar, Beaufort NC, 2011. (Rick Doble)

Visual Art & Digital Photography: Part 3 (2011)

Art, Memory And Subjective Truth

Is figurative art/photography limited while abstract art/photography is not?

For the last 100 years a debate has been raging in art: some artists wanted to create objective pieces of work that communicated a universal truth -- artists such as Piet Mondrian and Naum Gabo and those in an art movement known as the Constructivism. These artists saw work that relied on figures or forms from the real world as being limited.

This point of view is very much with us today as in the work of minimalist photographers. These artists feel that memory and the associations that we attach to things in the real world will somehow be too subjective and thus contain and restrict what a viewer can gain from a work of art.

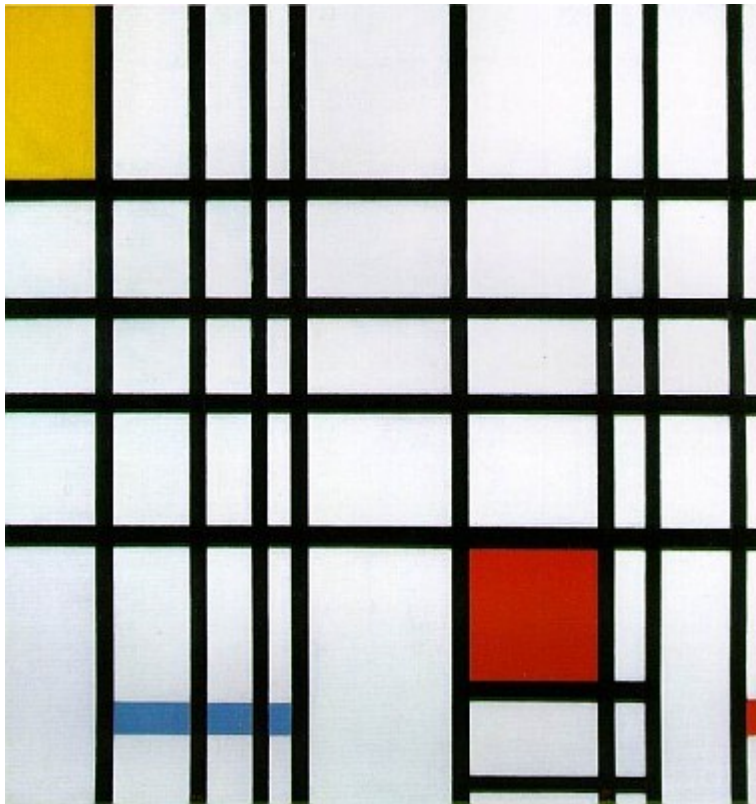


ILLUSTRATION: *Composition with Red, Yellow and Blue*, 1921, Piet Mondrian.
(webmuseum.org & ibiblio.org)

...true non-figurative art gives universal truth, whereas figurative art can give only a subjective truth.

Piet Mondrian

Nature...inspires me...but I want to come as close as possible to the truth and abstract everything from that, until I reach the foundation (still just an external foundation!) of things.....horizontal and vertical lines constructed with awareness, but not with calculation, led by high intuition, and brought to harmony and rhythm ... can become a work of art, as strong as it is true.

Piet Mondrian, 1914

This is similar to another long debate: classical vs. romantic. These two styles and approaches to art and life have continued back and forth for centuries -- and will never be resolved. In western orchestral music, for example, the style of music switches from one to another about every hundred years.

Following the idea of communicating truth, but from a different perspective, were artists like Hans Arp and Paul Klee who wanted to depict the essence of life, to make visible the unseen forces that were at play. And while these works were frequently abstract they often felt lifelike.

And then there were the abstract painters, like Wassily Kandinsky, who felt that they could communicate a spiritual reality better with abstraction using the pure forces of abstract shapes and colors without being tied down to reality -- and yet which echoed aspects of the real world.



ILLUSTRATION: Not one of Kandinsky's purely abstract works, this painting contains a number of recognizable elements. *Moscow I*, 1916, Wassily Kandinsky. (commons.wikimedia.org)

And in addition there were the abstract expressionists, especially those called action painters, such as Jackson Pollock, who wanted to create "a pictorial surface that gave the impression of an energy field..." (*The Museum of Modern Art: The History and the Collection*) This field, while extremely abstract, also felt human, almost like looking at the tracks of a person's movements laid out on a canvas.

But the Abstract Expressionists had their own take on art and truth. They were committed to a truth that was grounded in reality, that felt real, that included the mud and roughness of actual living. And they specifically rejected a truth that was merely an abstract construction. As Barnett Newman stated Abstract Expressionism stood in sharp contrast to this other vision of a pure abstract truth, "In the other we have a pure world of esoteric mathematical truth, a fantasy in symbolic logic." He preferred the real world of modern physics as described by Einstein.

And of course, there was plenty of figurative art -- albeit quite modern -- such as the work of Pablo Picasso, Henri Matisse and Willem de Kooning as well as work from the Cubist and Italian Futurist art movements.



ILLUSTRATION: *Le Rifain assis* [detail], 1913, Henri Matisse. (webmuseum.org & ibiblio.org)

But there was also a middle ground: the painter Nicolas de Stael began as an abstract painter and moved into figurative art. I believe he was trying to find that delicate balance between the things in the real world and an abstract reality.

What all of these movements had in common was a clear break with the past. And each felt that it had a special pathway to the truth. Another thing they had in common was the sense that the world was quite different from what we grasped with our senses.

However, I believe that none of them was right or wrong, but rather each had a piece of the puzzle. I like what each had to offer, what each discovered, and what each created. I don't think that liking art has to be either/or; I don't believe that I need to side with one ism vs. another ism.

And frankly, I hope this debate never ends. I think it is a useful one for art and for appreciators of art. Art can be a doorway into an unseen world, a spiritual way to perceive the world and a way to gain some perspective on our day to day existence.

Yet, if I had to choose an artist and an approach that I feel closest to now as an artist, it would be de Stael. This should be no surprise as I am taking photographs of real things in the real world and then abstracting them, but abstracting them using the forces of the things themselves, such as the blur of a musician as he plays.

As an artist and an experimental digital photographer, I have to make a choice even though I have worked at creating a wide range of imagery which included

abstract paintings. Yet as a photographer I am wedded to real things in the real world, but each of these has a force and a life of its own. Like the Italian Futurists, I see an energy field that is a part of the subjects I take photos of -- and when I shoot at slow shutter speeds, the movement of those things, and the rhythm of that movement can register on the photograph and reveal a world that is both familiar, real and also unseen.

Therefore while I understand Mondrian's point that "true non-figurative art gives universal truth, whereas figurative art can give only a subjective truth" and have spent hours looking at his beautiful work, I disagree. I believe the universal can also be found in specifics: loved ones, friends, towns, faces, trees, landscapes, parties. And it is those specifics that can give art a universal power and feeling that is conveyed to the viewer.



PHOTO: Techno Dance Figures, 2003. Taken at a concert in Atlantic Beach, NC. (Rick Doble)

The content of art is feeling;...feelings are neither 'objective' nor 'subjective', but both, since all 'objects' of 'things' are the result of an interaction between the body-mind and the external world.

Robert Motherwell, Abstract Expressionist painter

The man who writes about himself and his own time is the only man who writes about all people and all time.

George Bernard Shaw

Visual Art & Digital Photography, Part 4 (2011)

A Picture Energy Field

Composing photographic elements in a dynamic manner

When I take a photo, I often think of the area I have framed as an energy field. It is a field of forces that I must contain within the frame. My composition is based on how those forces reverberate within the frame, i.e., how they react to the hard vertical and horizontal walls of the picture format.

I arrived at the idea of an energy field in a very personal way. When I was a young boy, I often went onto the pond at my Dad's house and floated for hours in our small wooden row boat. When the pond was almost still and I was close to the edge, I could see the ripples from the boat hitting the shore and then coming back and hitting the boat. Some days I sat on the dock and watched ripples in the water, created by the wind, hit the posts on the dock and bounce back across the water. All the while I marveled at the small magic water bugs, the pond skaters, striding the surface and navigating these ripples, bugs that literally walked on water.

While I arrived at the idea of an energy field somewhat intuitively -- although I could sense it in the paintings of Jackson Pollock, work that I had seen in depth at his retrospective exhibit at the Museum of Modern Art in NYC -- it turns out that modern physics had already mapped out this basic concept and further that it was well known to the Abstract Expressionist painters.

The content of abstract expressionism has to do with energy...an energetic field of force.

Robert Motherwell

Jackson Pollock, wanted to create "a pictorial surface that gave the impression of an energy field...This field became the condition for advanced art."

The Museum of Modern Art: The History and the Collection



ILLUSTRATION: Even before modern physics, painters like van Gogh captured a sense of interrelated energy such as in this painting, one of his last, where everything seems to be in motion. *Wheat Field With Crows*, 1890, Vincent van Gogh. (commons.wikimedia.org)

In a book about the Abstract Expressionists, I came across the following paragraph concerning objects, energy and the new view of the real world that Einstein had conceived and that had been accepted by most Abstract Expressionist artists:

In classical (Newtonian) physics, an electromagnetic field was defined as an arrangement of discrete, electrically charged particles [ED.: think sharp objects like people in sharp photographs]. This field exerted a force on each particle determined by the position of the particle in relation to the others. But modern (Einsteinian) physics inverted this concept, defining "particles" themselves as stable patterns of electromagnetic waves [ED.: think a breathing moving person]. This model viewed the energy field as primary, and the object in is as complicated perturbations of that field.

Daniel Belgrad, *The Culture of Spontaneity: Improvisation and the Arts in Postwar America*

About 50 years earlier, the Italian Futurists had arrived at a similar idea:

The Futurists believed that physical objects had a kind of personality and vitality of their own. revealed by "force-lines" - Boccioni referred to this as "physical transcendentalism". These characteristic lines helped to inform the psychology and emotions of the observer and influenced surrounding objects "not by reflections of light, but by a real concurrence of lines and real conflicts of planes."

<http://www.all-art.org/history580-1.html>



ILLUSTRATION: *Dynamism of a Soccer Player*, 1913, Umberto Boccioni.
(commons.wikimedia.org)

However, there is a significant difference between the work of the Abstract Expressionists and the Italian Futurists:

Poet Robert Duncan emphasized that the Abstract Expressionist action painter's work was *"energy embodied in the painting (felt), which is now muscular as well as visual, contained as well as apparent..."* while the Futurist work was *"energy referred to (seen)..."*
Daniel Belgrad, *The Culture of Spontaneity: Improvisation and the Arts in Postwar America*

In other words the work of a Futurist was a picture or depiction of energy, while an action painter's work was the imprint of the actual energetic forces of the painter.

And how does this all relate to experimental digital photography?

Recently Lea Loudon, a gallery owner, who in May 2012 will be showing a *25 Year Digital Photography Retrospective* of my work, wrote about my experimental photography:

The quality found in his experimental images was as though he was painting with light and color, capturing movement as though it were an 'energy light field.'

Many years ago another reviewer said that I was 'action painting' with a camera -- a quite good description I think. Yet my work is a combination of approaches from a number of other artists.

I believe what I am doing is a mix of both Futurist ideas and Abstract Expressionist ideas about capturing energy. Combining elements of different art styles is often a useful way to develop new art.

New approaches to art often involve a synthesis of previous art movements, for example: His work [Jackson Pollock's] brought together elements of Cubism, Surrealism, and Impressionism, and transcended them all.

B. H. Friedman, *Jackson Pollock: Energy Made Visible*

The Italian Futurists wanted to depict movement through time, the Abstract Expressionists wanted to record the energy of their creative efforts and the movement of their bodies. In my photographs I do both: on the one hand I take a shot of a musician moving over time and, on the other hand, I let the positioning of my body and my framing determine the composition.

When I take a photograph I am in a state of heightened awareness; I can at the same time study, for example: the figure of a musician as he or she is playing, the background, the color of the light sources, the intersecting angles created by all of these and the relation between figure and ground. I move my body, frame and zoom the lens until I find a point of balance, of equilibrium -- and that is when I hit the shutter button. During this time all words and thoughts vanish from my mind and I let my senses and my body determine the right moment.

My work is both objective, i.e., a real shot of a musician over time, and subjective -- you are seeing a musician through my eyes, my body movement and the artistic decisions I made to get the shot. And if I am successful it is a photograph of the energy of the music being played.



PHOTO: In this photo I wanted to record the raw energy of Drew's playing. In this 2 second shot, Drew was moving as he played and I was moving with him. Drew Wright playing the guitar at Backstreet Bar, Beaufort NC, 2011. (Rick Doble)

Visual Art & Digital Photography, Part 5 (2011)

Flexible Perspectives

Learning from painting about a variety of perspectives

Photography is a 2-dimensional art form. Whether it is on paper or on a computer screen, it is a flat 2-dimension. At the same time it can create the illusion of 3-dimensions. And most often a viewer will come to a photograph expecting to see that illusion of 3-dimensions: a sense of perspective, depth and distance.



PHOTO: Rain on the windshield of a moving car in traffic in this 8 second handheld shot creates both a 2-dimensional graphic design and a 3-dimensional perspective along with a sense of motion. (Rick Doble)

Yet, as the abstract painters have pointed out, the surface of a 2-dimensional art form creates a 2-dimensional pattern of its own. This flat graphic aspect of 2-

dimensions in combination with or in contrast to the illusion of depth of 3-dimensions can create quite interesting compositions.

Some of the greatest photographers have used this tension between 2- and 3-dimensions to create exciting and dynamic work. They often have a geometry that they work with which takes years to learn and to develop. A picture can be flat and graphic, for example, or with a 3-dimensional background or a slightly foreshortened or severely foreshortened 3-dimensional background or a cubist kind of design where lines cross and several perspectives are offered at once.

One definition of composition might be: a pleasing mixture of a 2-dimensional arrangement with a 3-dimensional illusion

To see your work as 2-dimensional it often helps to put your work at a distance and upside down. This allows you to look at how the picture is constructed and to distance you a bit from your familiarity with the image.

A key lesson for any photographer -- in fact any artist, writer, musician --- is to look at your work, in this case your photo, as though seeing it for the first time and then judge it and make decisions based on that. This is not easy, since you already know your own work. You might have to put it away for a week before trying to look at it anew.

There are many ways that the 2- & 3-dimensionality can work together and interact:

== The background can be pushed up and flattened for example.

== The lines in the background can mimic or continue lines in the foreground

== Figure and ground can blend and merge

== Certain colors and shades, especially black, can make an overall design of their own which gives the work a geometry that may be subliminal such as the work of photographer, Cartier-Bresson

I might add that there is a bit of a perceptual trick that I use also. Once the eye has identified the subject, it tends to tune out the background behind it and around it. This allows you, the photographic artist, to play with that background in subtle ways.

There are also many traditional photographic techniques that affect perspective.

For example, a wide angle lens produces a rapidly receding background and perspective while a telephoto lens enlarges and pushes the background up against the subject. When these two basic effects are combined with depth of field they exert considerable control over the sense of perspective. A relatively long telephoto lens combined with a low aperture will press a background up against a subject and throw it out of focus, for example, while a high f/number and a wide angle lens can record a scene that is in focus from close-up to far away. In addition to this the angle of the camera is critical. A high angle will exaggerate the perspective, for example.



PHOTO: The figure of the guitarist bleeds and blends with the background, creating a flattened effect in this 2 second handheld shot, Beaufort, NC, 2011. (Rick Doble)

With experimental digital photography, the effects are even greater. The background can be made to almost merge with the subject, for example, so that the two bleed into each other. This is because camera movement will blur the background which is very different from being out of focus, at times extending the background into the subject.

The best way to learn about perspective is to study the work of masters, both photographers and painters, looking at them for their use of perspective and design. The following paintings illustrate many of my points.



ILLUSTRATION: This famous medieval painting pushes the background forward and makes it almost as large as the foreground, creating something like a collage effect. *Les Très Riches Heures du Duc de Berry*: February [detail], circa 1412. (commons.wikimedia.org)



ILLUSTRATION: This landscape by el Greco is very much like a telephoto shot. The perspective is compressed even though the picture takes in a wide range of territory. *A View of Toledo*, circa 1597, el Greco. (commons.wikimedia.org)



ILLUSTRATION: This landscape while depicting miles of depth is also quite flat -- only a painter such as Cezanne could have achieved such an effect. *Le Mont Sainte-Victoire vu des Lauves* (*Sainte-Victoire Mountain seen from Lauves*), 1902-1906, Paul Cezanne. (webmuseum.org & ibiblio.org)



ILLUSTRATION: This painting by Matisse is a masterpiece of 2- and 3-dimensions. The plants in the far background merge with the piano and figures in the foreground. *The Music Lesson*, 1917, Henri Matisse. (webmuseum.org & ibiblio.org)



ILLUSTRATION: This remarkable Cubist landscape creates conflicting perspectives along with a 2-dimensional construction. *Image Landscape with Houses at Ceret*, 1913, Juan Gris.
(webmuseum.org & ibiblio.org)

Historic Timeline: The Capture Of Movement In Painting And Photography (2011)

For over 10 years now, I have been using the digital camera to capture the sensation of movement by taking photos at very slow shutter speeds, a technique that registers movement and creates pictures with motion blur.

Yet this is not a new idea, although it was abandoned in the recent past. For about 500 years painters, and later photographers, in the western tradition have approached the idea of movement and motion in their work. This timeline shows the progression of these images and some of the concepts that were involved.

Leonardo da Vinci (1452-1519)



Studies of water passing obstacles and falling.
(Leonardo da Vinci) (commons.wikimedia.org)



Study of an explosion. (Leonardo da Vinci)
(commons.wikimedia.org)



Flight of a bird. (Leonardo da Vinci)
(commons.wikimedia.org)

Rembrandt van Rijn (1606-1669)

The modern painter Kirchner had this to say about Rembrandt's drawings and his own work:

"First of all I needed to invent a technique of grasping everything while it was in motion, and it was Rembrandt's drawings...that showed me how. I drew in the streets and squares, in taverns, in the circus, in cafes. Anywhere I could see people in motion."

Ernst Ludwig Kirchner, German Expressionist Painter (1880-1938)



(Rembrandt van Rijn) (commons.wikimedia.org)



(Rembrandt van Rijn) (commons.wikimedia.org)



(Rembrandt van Rijn) (commons.wikimedia.org)

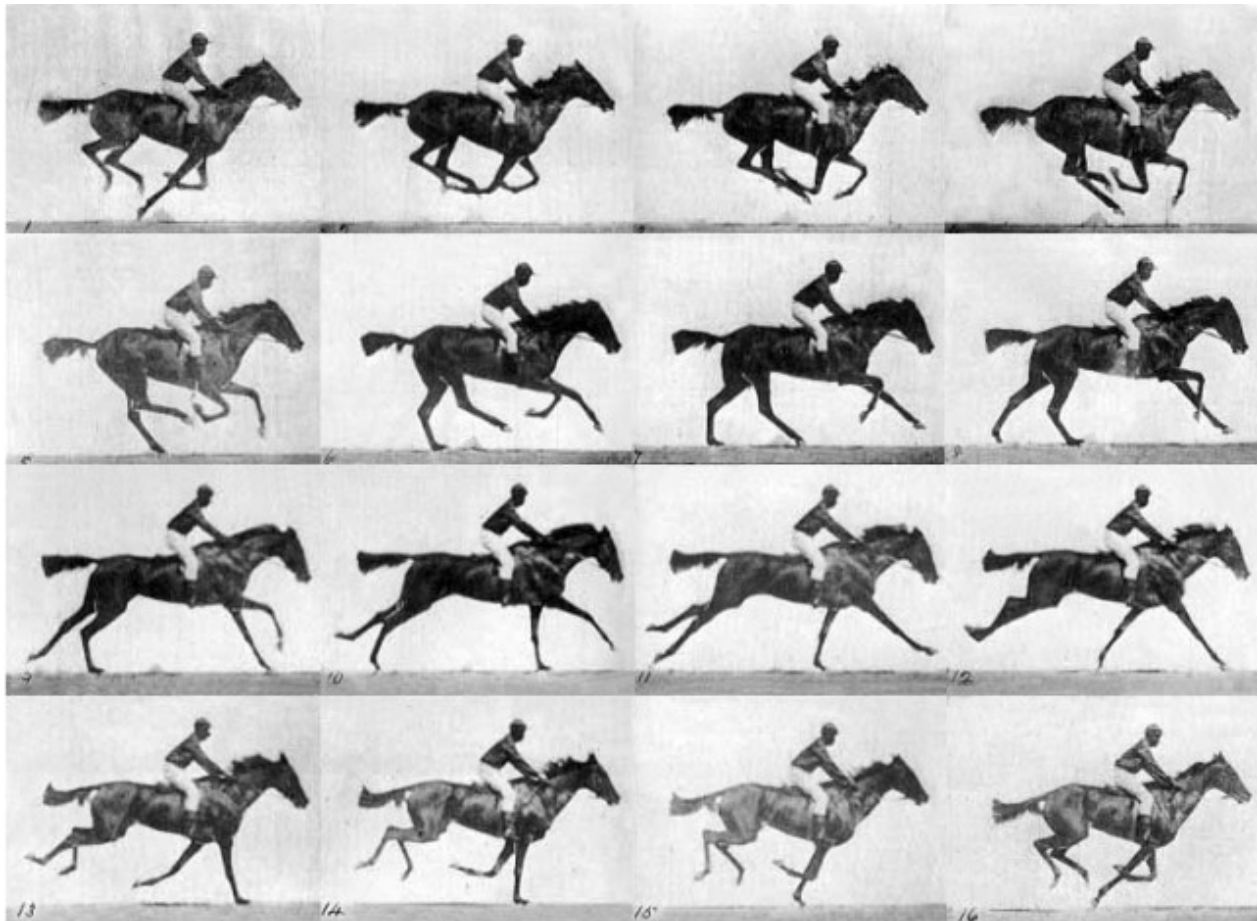
Joseph Mallord William Turner (1775-1851)



This painting of a storm at sea conveys the force and movement that is happening. (Joseph Turner) ([commons.wikimedia.org](https://commons.wikimedia.org/wiki/File:Rain,_Steam,_and_Great_Bridge.jpg))

Eadweard J. Muybridge (1830-1904)

Before movies were invented, Muybridge perfected a method for taking sequential photographs of a horse trotting at a fast shutter speed ($1/1000$ second) in 1878. Muybridge went on to make extensive studies of human and animal locomotion using his system. His study of humans in motion is still the most complete of its kind. He also invented the zoopraxiscope that projected a sequence of his locomotion photos in motion and was important to the development of moving pictures. His work revealed aspects of motion that the escaped the naked eye as seen in the famous example below.



When a horse is in motion, it is hard to see that all four legs leave the ground at one point in the gallop. However, when viewed as still photos, it can be clearly seen that all four hooves are not touching the ground at one point in the run (second frame, first row). (Eadweard Muybridge) (commons.wikimedia.org)

Edgar Degas (1834-1917)

Degas, who was a photographer himself, was aware of the work of Muybridge and added delicate timing and a sense of movement to many of his paintings. A viewer often has the feeling that a second before and a second after one of the scenes things were quite different. This sense would be later picked up by another Frenchman, Cartier-Bresson, in his photography.



(Edgar Degas) ([commons.wikimedia.org](https://commons.wikimedia.org/wiki/File:Edgar_Degas_-_Three_Dancers_in_Blue_-_WGA01881.jpg))

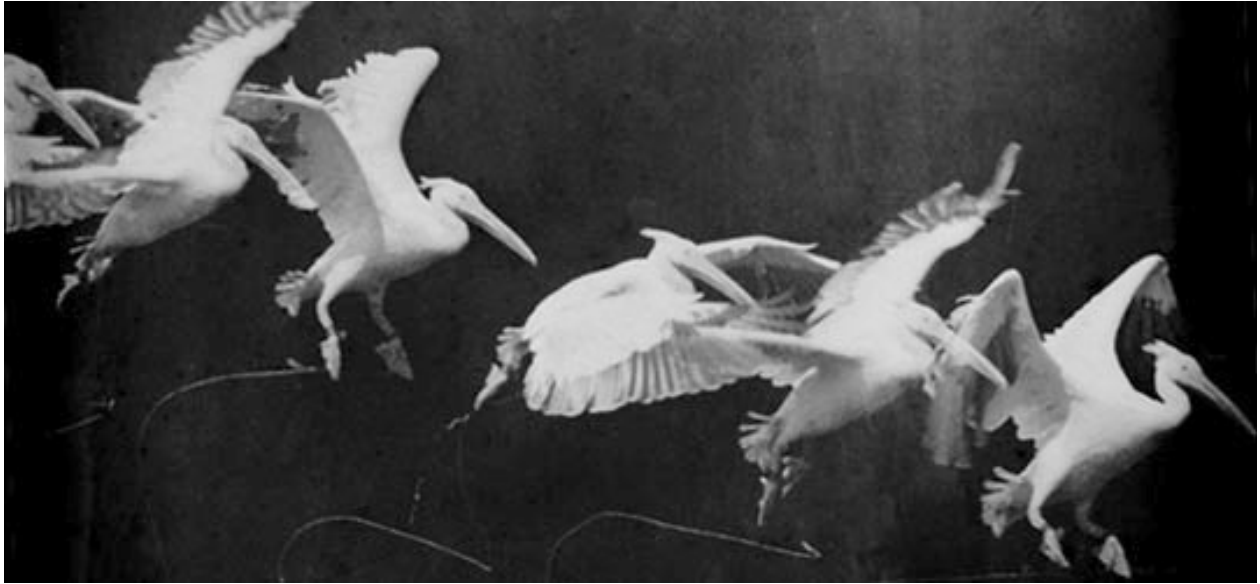


(Edgar Degas) (commons.wikimedia.org)



(Edgar Degas) (commons.wikimedia.org)

Etienne-Jules Marey (1830-1904)



In the 1882 Marey perfected a system where a sequence of distinct phases of an animal in motion could be recorded on one photograph. (Etienne-Jules Marey) (commons.wikimedia.org)

Edison - Motion Pictures Begin In 1893

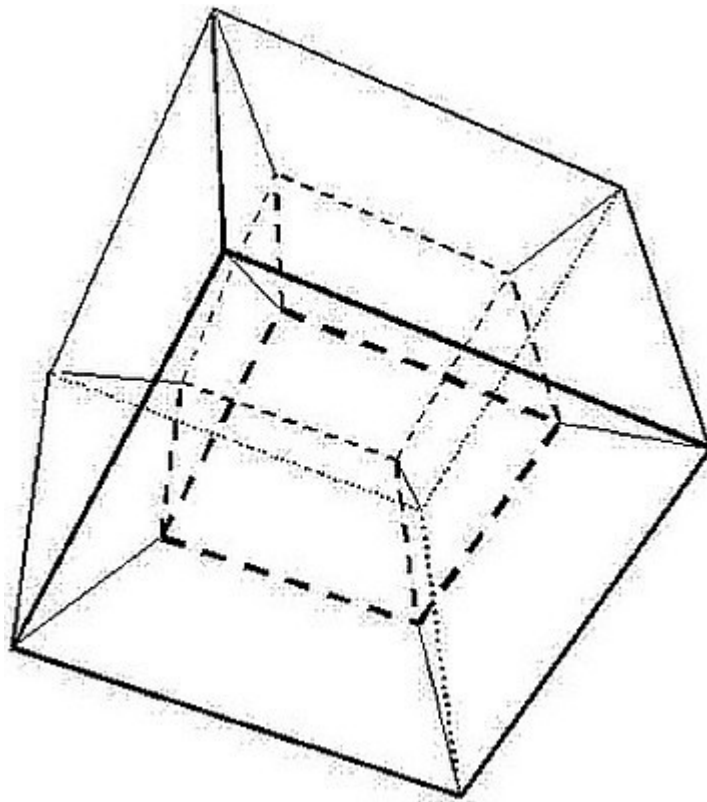
In 1893 Thomas Edison built the first movie studio called the Black Maria or the Kinetographic Theater. It was used to shoot short film strips for the Kinetoscope, an early motion picture device.



This series of frames is from a very short Edison movie sequence called 'Fred Ott's Sneeze.'
(Thomas Edison) (commons.wikimedia.org)

Einstein - Space-Time And Relativity, 1905

In 1905 Albert Einstein published a paper that presented his special theory of relativity. A consequence of his theory was the idea that time could be considered another dimension, often seen as the fourth dimension. Space and time were inextricably linked, thus the concept of space-time. And since motion occurs over time, implicit in this notion was the idea that this dimension and consequently movement could -- and some felt should -- be part of modern painting and imagery.



This is a two dimensional drawing of a four dimensional hypercube. The inner cube can be thought of as the cube at an early moment in time and the outer cube as a later moment in time. The lines connecting the two cubes can be thought of as the interval of time that connects them.
(commons.wikimedia.org)

*To transform height, width, and depth into two dimensions is for me
an experience full of magic in which I glimpse for a moment that
fourth dimension which my whole being is seeking.*

Max Beckmann, Painter (1884-1950)

Ernst Ludwig Kirchner (1880-1938)

From about 1908-1914, the most important German expressionist painter, Kirchner, worked to depict the human figure with a sense of motion - not as a static and idealized figure as painting had done in the past. He wrote, *"Why didn't those worthy gentlemen [other painters] paint real life? Because it moves, that's why. They neither see it nor understand it. And then I thought -- why shouldn't I try? And so I did."*

Quoted in *Meanings of Modern Art* by John Russell, MOMA



Women on the Street. (Ernst Kirchner) ([commons.wikimedia.org](https://commons.wikimedia.org/wiki/File:Ernst_Kirchner_-_Frauen_in_der_Stra%C3%9Fe.jpg))



Women on the Street. (Ernst Kirchner) (commons.wikimedia.org)

Italian Futurism 1909-1914

The Italian Futurist art movement came about as a response to the rapidly developing technology of the day such as automobiles and airplanes. A major aim of these artists was to depict continuous movement rather than the images of sequential sharp phases of motion that Muybridge and Marey had perfected.



Unique Forms of Continuity in Space, bronze sculpture. (Umberto Boccioni)
(commons.wikimedia.org)



An abstract Italian Futurist painting depicting a sense of motion. (Giacomo Balla)
(commons.wikimedia.org)

Anton Giulio Bragaglia (1890-1960)

Between 1912-1916 Bragaglia, a photographer associated with the Italian Futurist Art Movement, took a number of photos using slow shutter speeds to depict continuous rather than sequential motion. He coined the term *Photodynamism* to label these kinds of photographs. "Anton Bragaglia's photography makes visible that which the eye itself cannot perceive. This ambition was achieved by means of capturing in a single image the flowing trajectories of objects in motion, made visible by long exposure times." Dr. Hugo Heyrman, media professor. *Art and Synesthesia*.



This photograph was taken over a number of seconds to record the movement of the player.
(Anton Bragaglia) (commons.wikimedia.org)

Marcel Duchamp (1887-1968)

In 1912 the revolutionary and hard to classify artist, Duchamp created a sensation with his painting entitled *Nude Descending A Staircase*. In retrospect it can be seen as a mixture of the sequential and the continuous techniques for depicting motion in a still image. It is generally agreed that the Italian Futurist art movement was a major influence on this painting and Duchamp acknowledged the influence of Marey as well.



Nude Descending a Staircase, No. 2.
(Marcel Duchamp) ([commons.wikimedia.org](https://commons.wikimedia.org/wiki/File:Marcel_Duchamp_-_Nude_Descending_a_Staircase_-_No._2.jpg))

D.W. Griffith - Motion Pictures Come Of Age In 1915

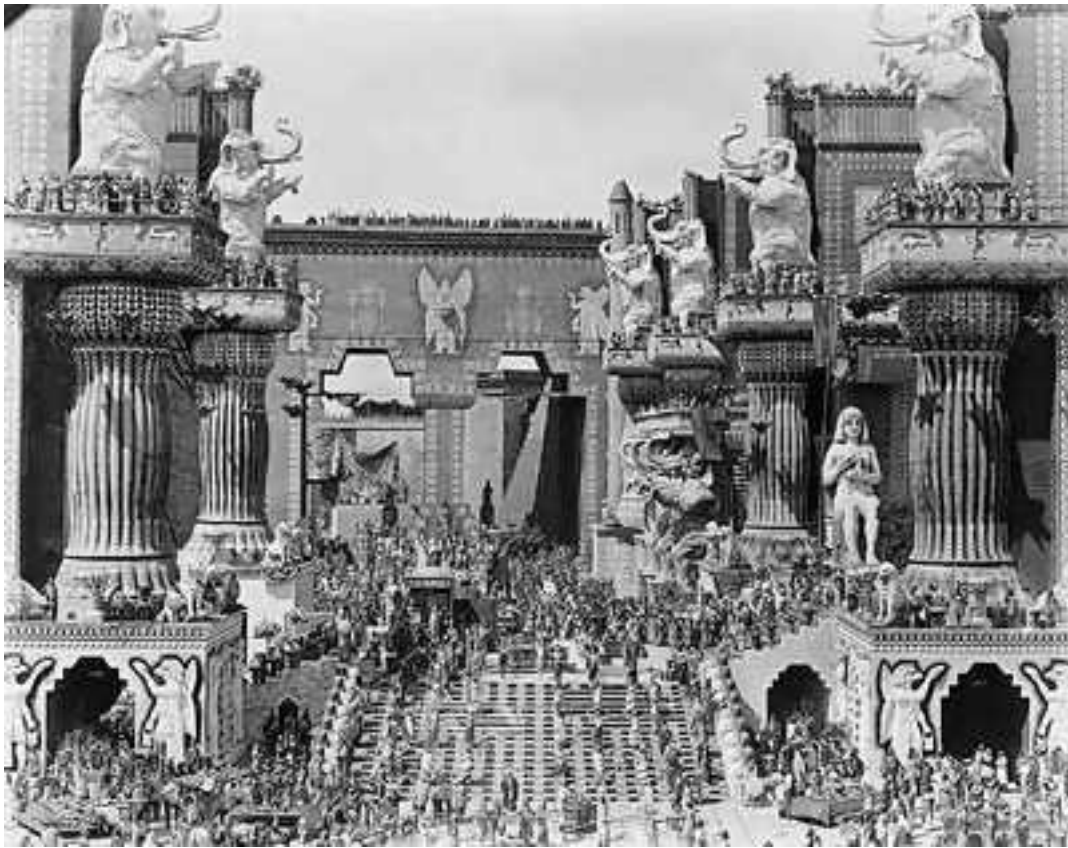
Motion pictures became increasingly sophisticated reaching a significant milestone in 1915 with *Birth of a Nation* by D. W. Griffith, the first large budget, full length movie. It was followed the next year by another big budget movie: Griffith's *Intolerance*.



Poster from D. W. Griffith's film *Intolerance*. (commons.wikimedia.org)



Still from D. W. Griffith's film *Intolerance*. (commons.wikimedia.org)



Still from D. W. Griffith's film *Intolerance*. (commons.wikimedia.org)

The Future Of Depictions Of Motion In Still Imagery

Unfortunately with the success of capturing motion in the movies, the search for still images of movement waned and virtually was abandoned until recently. Now with the new capabilities of the digital camera, the quest to convey a sense of motion in a photograph or a work of art can continue.

SCIENCE, ART, PHOTOGRAPHY & EXPERIMENTATION



Science, Art & Photography, Part 1 (2011)

The Camera As A Microscope Of Time

In the modern world, the camera has become our eyes. We can see things that we would not and could not have seen without the camera.

Yet there remains an area of photography that is still unexplored. That is the area of slow shutter speed photography or long exposure photography. Admittedly this is much harder to control than fast shutter speed, sharp photography. But that makes it all the more exciting.

The majority of my book, *Experimental Digital Photography*, explains how long exposure photography can be used to create new and exciting photographic imagery which is both realistic and expressive.

Quotes From My Book, *Experimental Digital Photography*:

Why Motion and Slow Shutter Speed Effects Have Been Ignored

Motion photography was quite difficult and expensive before the advent of digital photography. Consequently very little work was done in this area. Still photographs of motion with film cameras were almost impossible without the immediate feedback of the LCD monitor to accurately judge the subtle effects of different shutter speeds with different types of motion under different lighting conditions. As a result traditional photography virtually ignored motion even to the point of labeling photos, that deliberating used blur, flawed photographs.

Thus photography, for the most part, has been restricted to shutter speeds above 1/30 second unless the camera was anchored to a tripod and the subject was not moving.

There Is Much To Be Discovered

However, below 1/30 of a second there is another world – a world that photography has not studied in much depth. And since there are few photos with this subject matter, it is a rich area for exploration.

Revealing Hidden Worlds With Slow Shutter Speed Photography

The phrase 'exploring new worlds' with digital photography is more than just a metaphor. Experimental digital photography that utilizes slow shutter speeds has the ability to show worlds that have not been seen before, in a manner similar to high speed photography, but at the other end of the spectrum.

High speed photos revealed a world entirely different from the one most people took for granted. For example, when Eadweard Muybridge took a series of high speed photographs of a horse galloping, he proved that all four legs left the ground and revealed what horse riders, trainers and spectators had never been able to see properly.

One thing was very clear from Muybridge's pictures: No painter had ever gotten the position of a horse's legs correctly. In fact, many contemporary painters disputed his findings when they were first announced as it meant that their paintings were all incorrect.
equineink.wordpress.com

In the same manner slow shutter speed photography can show us rhythms, energy and a sense of time that we could not see otherwise.



PHOTO: Photo caption on wikimedia: "High-speed photograph of an air rifle shot through a light bulb. Method: Grey room, open aperture, triggering the electronic flash unit by the air gun projectile (interruption of an electrical contact)." Credit for caption & photo: Markus Kempf, Frank Bastian. (commons.wikimedia.org)

Examples Of The Camera As A Microscope Of Time

In the ten photographs in this article I will illustrate how the camera can operate as a microscope of time. You might think of the shutter speed as slicing an area of time.

The slices can be quite thin as in the photo before of a bullet going through a glass bulb or the slice can be thick as in the next photo of water running over rocks. Slow shutter speeds can create an almost mesmerizing effect such as the soft foamy appearance of the water in the next shot. This photo has a very different feel than it would have had at normal or very fast shutter speed.



PHOTO: The mood of this shot was created with an extremely slow shutter speed which blurred the flowing water yet the rocks remain steady and sharp. The soft look of the water gives the creek a friendly warm feeling. (commons.wikimedia.org)



PHOTO: Something as simple as this water drop is transformed when shot at a high shutter speed. Credit: Roger McLassus. (commons.wikimedia.org)

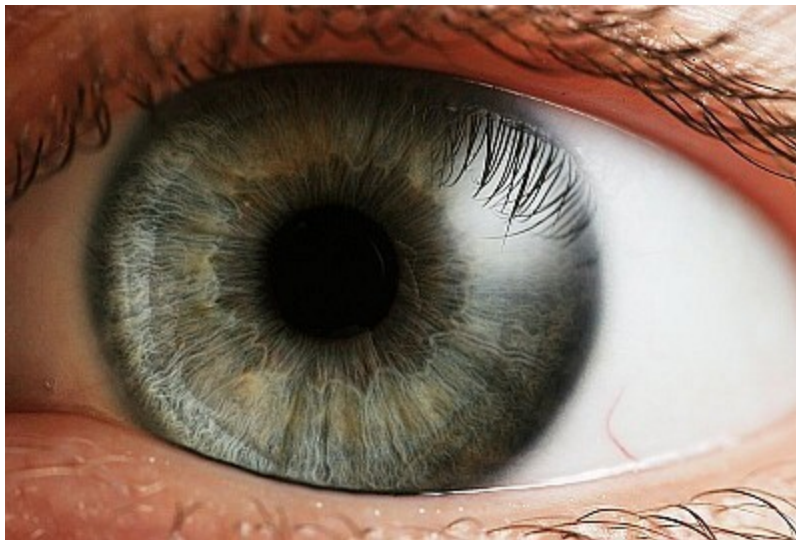


PHOTO: Marvelous as our eyes are, they are limited. One estimate is that they have the equivalent of about a 1/50 shutter speed -- meaning that they cannot see at slow shutter speeds or at high shutter speeds. (commons.wikimedia.org)



PHOTO: This wonderful shot shows the difference between three different shutter speeds with a turning windflower. (commons.wikimedia.org)



PHOTO: These two shots taken from the same location with an anchored camera, show the difference shutter speed can make. The difference between them is due entirely to shutter speed. At a very fast shutter speed the fast moving water has a sharpness like ice; at slow shutter speeds, it is soft like a cloud or cotton balls. Credit: Fir0002/Flagstaffotos. (commons.wikimedia.org)



PHOTO: Atlanta Downtown Connector At Night: While the buildings are rock solid, cars move like rivers of light down the highways -- not unlike the water-stream-over-rocks photo shown earlier in this article. Every city is alive and this photo captures that energy.
(commons.wikimedia.org)



PHOTO: In this 55 second exposure the clouds blur and stretch in contrast to the solid dock. I think this shot is closer to the way we as humans would experience such a place with the feel of the wind on our faces. (commons.wikimedia.org)



PHOTO: Similar to the previous shot, the water and sky are fluid with motion and energy. This separates this shot from the standard sunset photograph. Credit: Mila Zinkova.
(commons.wikimedia.org)



PHOTO: Panning with a bicycle, in almost perfect synchronization, created this shot that blurs the rain soaked streets but keeps the bicycle clear -- yet conveys a sense of mood and motion.
Credit: Northboer. (commons.wikimedia.org)

Science, Art & Photography, Part 2 (2011)

The Joy Of Experimentation

How the scientific method can be applied to digital photographic experimenting

Science and photography often involve a similar point of view. Experimenting is one of those areas. Each discipline can learn from the other.

Digital photography as an art is uniquely capable of benefiting from experimentation. A myriad number of settings can be controlled and closely monitored, especially with the help of EXIF data. If these settings are adjusted in a structured manner, an experimenter can zero in on new and exciting techniques and imagery.

SCIENCE AND EXPERIMENTATION

In Plato's Dialogues, Socrates is asked:

"How will you look for it, Socrates, when you do not know at all what it is? How will you aim to search for something you do not know at all? If you should meet with it, how will you know that this is the thing that you did not know? " And Socrates agrees with the questioner.

While Plato's logic is impeccable, his argument is flawed. Scientists and artists do discover things that they did not know. Often using intuition and not logic, experiments have shed light on the unknown and brought what was formerly unclear within the grasp of human knowledge.

Just a few years after Plato wrote the Dialogues, the Greek Eratosthenes performed one of the first experiments in which he showed the Earth was a globe and calculated the circumference within 200 miles of today's measurements. And starting with Galileo, who many believe pioneered the modern methods of experimenting, much of the modern world has been constructed due to experiments.

While experimenting is often thought of as primarily a logical scientific tool, it is frequently all too human -- even in the world of science. By definition experimentation explores areas that have not been explored. While there are some guideposts, these can often be defined only in the broadest terms. In the end, accident frequently plays a major role in scientific experimentation. And in the end it often takes intuition and an open mind to understand the nature of an unexpected result -- not unlike the intuitive mind of an artist.

The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.
Albert Einstein

It was quite the most incredible event that has ever happened to me in my life. It was almost as incredible as if you fired a 15-inch shell at a piece of tissue paper and it came back and hit you. On consideration, I realized that this scattering backward must be the result of a single collision, and when I made calculations I saw that it was impossible to get anything of that order of magnitude unless you took a system in which the greater part of the mass of the atom was concentrated in a minute nucleus. It was then that I had the idea of an atom with a minute massive center, carrying a charge.

Ernest Rutherford

(commenting on his experiment that resulted in discovering the basic structure of the atom)

As any scientist can explain, experimenting is an art. Some of the greatest findings have come about because of a clever experiment that revealed a significant result such as Rutherford's famous experiment mentioned above. And although every new experiment will be different, there are lessons to be learned from past experimentation.

ART AND THE SCIENTIFIC METHOD OF EXPERIMENTING

I believe contemporary art and photography can learn from science and incorporate some scientific methods into their own explorations. While art and science are quite different, experimentation has been central to major art movements in the 20th century and today is a major trend with digital art and photography.

All the members of the [Abstract Expressionist] group were experimental in their approach. The absence of preconceived outcomes was a celebrated feature of Abstract Expressionism. Mark Rothko (1947) wrote that

"I think of my pictures as dramas... Neither the action nor the actors can be anticipated, or described in advance. They begin as an unknown adventure in an unknown space... Ideas and plans that existed in the mind at the start were simply the doorway through which one left the world in which they occur."

David Galenson, *The Life Cycles of Modern Artists*

While the blunt force experimental method of trial and error is the often used by artists and photographers, there are structural approaches that may make experiments more productive. With the Internet there is now a wealth of information about various scientific experiments of the past and artists should borrow ideas that will further their artistic efforts.

Where Science And Art Do Not Intersect

While ideas and methods from science can be quite useful to the artist, there are limits. A scientific discovery must meet the test of the scientific method, meaning that the same results must occur when the discovery is tested by independent scientists, i.e., the results must be repeatable.

However, for the artist, a good photograph is a good photograph, a good painting a good painting -- if it works, it works. Nothing further is needed. The only point in going further would be to explore the possibilities of a newly discovered experimental technique that might produce a series of interesting photographs or paintings.

GENERAL STEPS FOR EXPERIMENTATION:

Guidelines for artists and photographers

== Have a general idea about what you are after

If your ideas are too general, you will have no guidance; on the other hand, if your ideas are too specific, you might miss promising possibilities that don't fit with your expectations.

== Do some initial tests

Determine whether this avenue of exploration can yield promising results -- in my case it was the Ferris wheel pictures (next) that showed me the possibilities and also the range of effects.

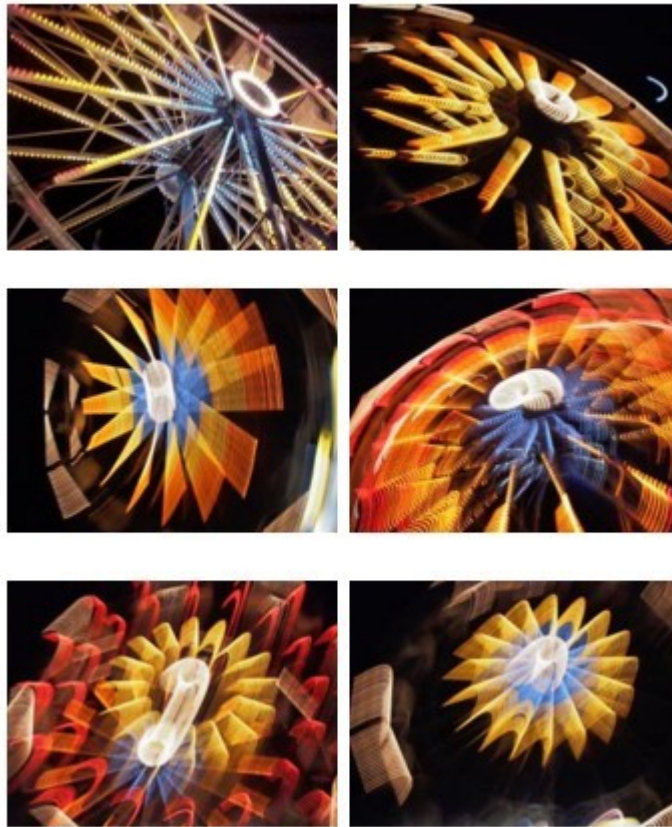


PHOTO: In one of my initial explorations to test my general ideas about motion and digital photography, I used the movement of a Ferris wheel combined with camera movement along with the effect of bright lights against a black night sky. As a result I was able to create a variety of interesting experimental photographs which showed me that I would be able to capture a wide range of motion effects with digital photography and that it was an avenue worth exploring. In this series of pictures the top left frame is a realistic picture of a Ferris wheel at night and the other five were created with motion effects. (Rick Doble)

== Understand what you did

It is important when experimenting to be able to know what you did when you get a good result. This ability to backtrack and recreate what led to the result is crucial -- otherwise all you have is a successful result that you know is possible, but no idea how it happened.

A Delicate Balance Between Control And Accident

The Principle Of Limited Sloppiness In Science:

Why it is important to allow accident and unintended elements at times into the experiment.

If you're too sloppy, then you never get reproducible results, and then you never can draw any conclusions; but if you are just a little sloppy, then when you see something startling, ... you nail it down So I called it the 'Principle of Limited Sloppiness'.

Max Delbruck,.Interview. Oral History Project. Pasadena: California Institute of Technology Archives, 1978.

How A Closed Mind Can Prevent New Discoveries:

Men who have excessive faith in their theories or ideas are not only ill prepared for making discoveries; they also make very poor observations. Of necessity, they observe with a preconceived idea, and when they devise an experiment, they can see, in its results, only a confirmation of their theory. In this way they distort observations and often neglect very important facts because they do not further their aim.

Claude Bernard, *An Introduction to the Study of Experimental Medicine*, 1865

What To Do When You Discover Something Useful

My Advice: When you find a promising effect, explore it thoroughly. What you have found is a rich vein of possibilities and you should mine it for all you can get. A picture that looked great at the beginning might lead to a much stronger one with some more work -- so treasure those first successes but then test them and take them to the limit to get the most out of them. This area that you have discovered, becomes a sub-zone of your experiment that is rich with possibilities.

How To Experiment With Digital Photography: (2011)

Hands-On Techniques

WHY EXPERIMENT WITH DIGITAL PHOTOGRAPHY?

From the moment I bought my first crude digital camera in 1998, I knew that the LCD monitor made the digital camera a different kind of beast. The instant feedback allowed me to zero in on effects in real time. While experimenting was possible with film, it was impractical as it was time consuming, expensive plus the long time lag between taking a photo and seeing the results made learning especially difficult. Digital solved all these problems and made it the perfect photographic medium for experimenting.

EXAMPLE OF EXPERIMENTING

After about a year of experimenting, I wanted to experiment with panning -- this effect is often used in a limited way in still photography, e.g., a football player running against the blurred background of the stands. But I wanted to use much slower shutter speeds than had been used in the past.

From My Book, *Experimental Digital Photography: How To Pan*

To pan successfully you will need to move the camera so that it tracks the subject in synchronized motion. This means that the camera is locked into the movement of the subject – and in a perfect pan – the two movements, camera and subject, are in unison. Typically the subject is a moving car or a person walking or running. And even though you may be tracking the subject correctly (absolute movement) there will still be internal movement (relative movement) such as hands swinging back and forth which will not be in-sync with your panning.

NOTE: The terms relative and absolute movement were defined 100 years ago by the Italian Futurist painters.

EXPERIMENTING STEPS

Step #1: Define the key variables

I knew that the principle variables were subject movement, camera movement and a combination of the two. My mentor, Ross Scroggs at the UNC-CH photo lab where I worked as a graduate student in the 1970s, taught me about this when it came to effects of blur and motion in a photograph.

Step #2: Control other variables not part of the experiment

Initially I wanted even lighting with the same kind of lamp (color temperature) so that light would be a constant factor in my photographs. Plus I wanted to work at night so that changing daylight would not be a factor.

I also needed to shoot moving subjects that were at roughly the same distance. And ideally I needed to find subjects that moved at about the same speed, so that the variable of subject speed would be constant for my initial tests.

Step #3: Having understood the variables, try a number of different approaches

I wanted to shoot at a number of different shutter speeds and in addition a number of different angles. But to keep my experiment clear, I decided to shoot at several different shutter speeds at one angle, then change angles and again shoot at several different shutter speeds

NOTE: With the EXIF date embedded in digital photographic imagery, it is now relatively easy to go back and look at the camera settings that produced the photo.

Step #4: Expect the unexpected

As scientists know, the unexpected often happens. This is part of the fun and the excitement of experimenting. This also means that you must be open to accident and results that differ from what you thought you might get.

MY LABORATORY

Having laid out the principle elements of my experiment, I looked for a setting that would meet my criteria. And I found the ideal laboratory close to where I lived. It was a go-kart track that was open until eleven o'clock at night.

The go-kart track was perfect because it was:

== well lit at night with the same kind of even lighting around the track, thus controlling the variable of lighting

== the go-karts traveled at about the same speed

== the track allowed a number of different angles

== because it was a recreational area, no one minded that I took pictures for several hours every Saturday for most of the summer



PHOTO: One of my first attempts at taking panning shots of a go-kart. I took this from the sidelines of the track. The shutter speed = 1/4 second, handheld. (Rick Doble)

It took me quite a while to find the right shutter speed and angle, but eventually I discovered a vantage point on a bridge that crossed the track. This allowed me to shoot down on the go-karts at about the same distance. As a result I could set the lens to one zoom setting (focal length) and focus at one intermediate point with enough depth of field to cover a change in position. This solved the problem of constantly changing the zoom and focus which had occurred at other positions on the track when the go-karts were at variable distances.



PHOTO: The most successful go-kart photo, taken from a bridge above the track. (Rick Doble)

In the process I also learned much more about the technique of panning. I learned that I had to follow a go-kart long before I pushed the shutter button so that I could establish a consistent movement of the camera in sync with the vehicle. Also I found that like a tennis or golf swing, I had to follow through after the shot was taken which resulted in much smoother pictures.

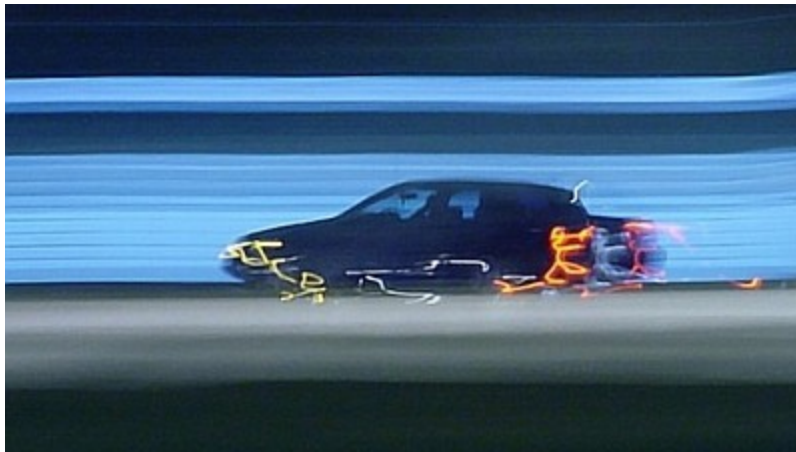


PHOTO: Shot in a downtown area, my panning moved in almost perfect sync with the car -- as you can see the clear outline of the interior of the car is in this shot. Shutter speed = 2 seconds, handheld. (Rick Doble)

MOVING ON AND ALLOWING MORE VARIABLES

Once I had mastered the go-kart pictures, I moved on to shots that were more spontaneous but with more variables and less control. I decided to take photos of cars driving down the main street of a town close to where I lived.

This was a good choice because:

== the light was acceptable with the same kind of street lamps at regular intervals along the route

== the speed limit for cars at this point was twenty miles an hour, so I knew what to expect when cars drove through

== there was a park just off the main street that gave me a good angle for shooting



PHOTO: This shot shows absolute and relative motion. The absolute motion is the overall movement of the car in one direction; the relative motion is the movement of the hub caps that show how the wheels turn. Shutter speed = 2 seconds, handheld. (Rick Doble)



PHOTO: This photo was taken after I had become more comfortable with panning shots of cars. It was taken in the rain near an intersection where a number of different colored lights were reflected in the rain water. Shutter speed = 2 seconds, handheld. (Rick Doble)

ITALIAN FUTURISM AND MY SLOW SHUTTER SPEED SHOTS OF CARS IN MOTION

From the beginning of my experiments, I had clear images from the Italian Futurist movement in mind. The new sense of motion and speed that took over the world around 1910 was a central to this modern art movement. So from the start I was looking at ways to capture pictures similar to their paintings -- but with a camera. Of course, I did not know if this was possible. Nevertheless, I think it was quite helpful to have several of their paintings in mind as I conducted my experiments -- partly for inspiration and partly as a guide to help me through the forest of choices that I needed to make.

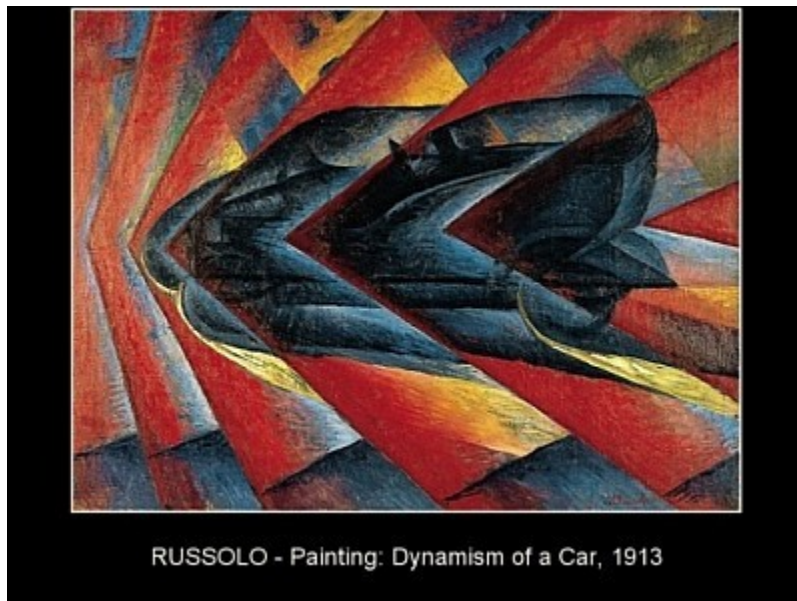


ILLUSTRATION: *Dynamism of a Car*, 1913, Luigi Russolo. Italian Futurist painting used in my joint presentation with 2 Italian professors entitled: *The Future of Futurism* presented to 12th Generative Art Conference GA2009, Milan Italy, 2009.

I kept shooting and shooting, taking thousands of shots. Then to my surprise I got what I was after. It turned out that the chrome on a car could stand out and be clearly registered in a photograph even in dim light. This chrome gave the effect of line and these lines distorted and produced a photograph very much like a Futurist painting -- an effect that was completely unexpected.

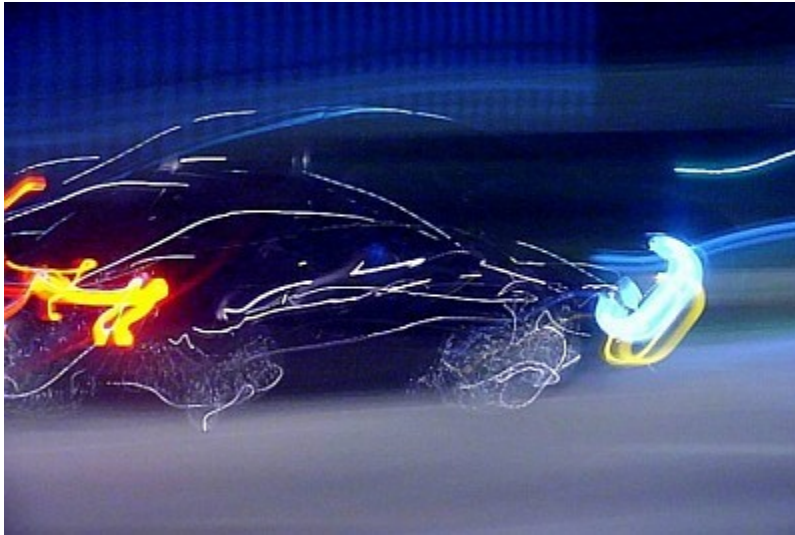


PHOTO: My photo of this car is similar to the paintings and the sense of speed and motion advocated by the Italian Futurists 100 years ago. The white lines are from the chrome on the car -- and not created with software. Shutter speed = 2 seconds, handheld. (Rick Doble)

Photo/Poem: Pictures & Poetry (2010)

Discovering Painting-With-Light Digital Photography *An autobiographical picture poem*

NOTE: This poem is from a series of autobiographical poems I wrote about my creative evolution and the creative process in 2010.

Poem: Painting With Light

Year 2000, Beaufort NC, Age 56
experimenting with slow shutter speed digital photography

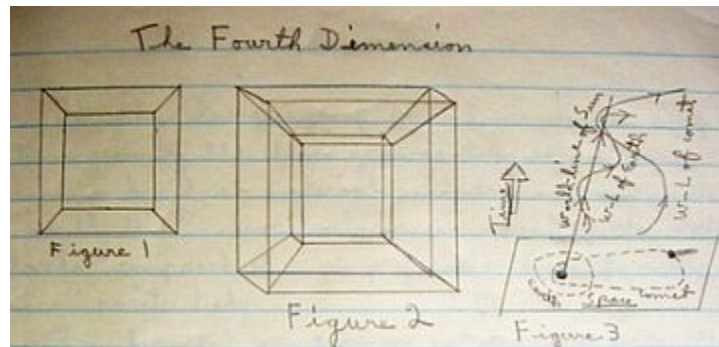
Reality is merely an illusion, albeit a very persistent one.
~ Albert Einstein ~

In 2000 I crossed an invisible threshold
one that other photographers could have crossed
but which few had

Deliberately, I bought a digital camera
that would expose for seconds
and not fractions

I had guessed there was a world
unseen and that the new technology
with its instant feedback
would give me the tool I needed

Later I would understand
that my life had been leading to this point:



My drawing of the 4th dimension of time at age thirteen -- from a book by George Gamow. (Rick Doble)

A notebook about Einstein and space-time
written at age thirteen



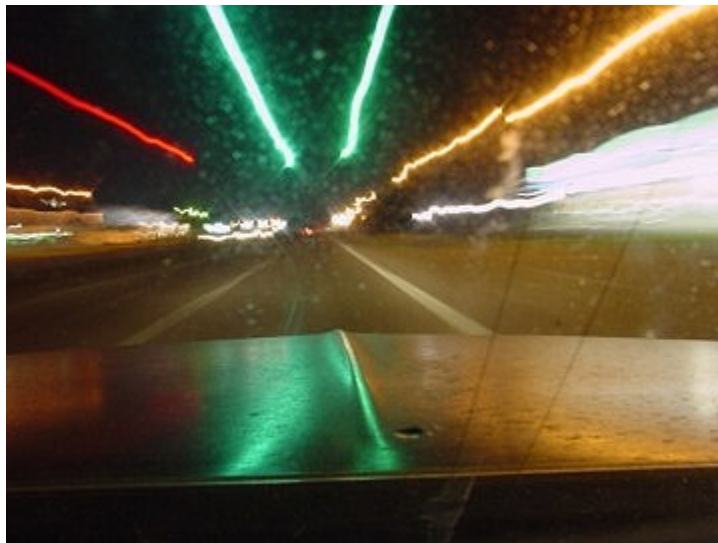
My early computer art made around 1987 from the photographic study of human figures in motion by Muybridge. I wrote computer programs to digitize and colorize his black and white photos. (Rick Doble)

and my decade long detour into computers
plus my study of Muybridge's figures in motion
meant that I was up to speed
with the new photographic medium

still in its infancy

Not understanding the dimensions
of this world at first
it took a while to get my bearings

I did it step by step:



First mounting a tripod
next to the dash
so that my camera peered
through the windshield



into the dark vanishing point
of the highway

for 8 seconds
points of light stretched across time
until the shutter closed –



Now strung with bright yellow dashes
from blinking warning lights,



now streaked blood red from top to bottom
with brake and stop lights
as I slowed into stalled traffic

Prowling the highways
I cruised the dark back streets and brightly lit bridges



and coasted through the city's main drag,
all the while keeping my eye peeled



for flashing lights
neon and areas of glass
shiny metal that added reflections



I did this
on clear nights or

when a low cloud cover lit the sky



I did this in hard rain, drizzle and mist –
the wetness acting like a mirror and a lens



After months
I pulled the camera off the tripod
and shot handheld –

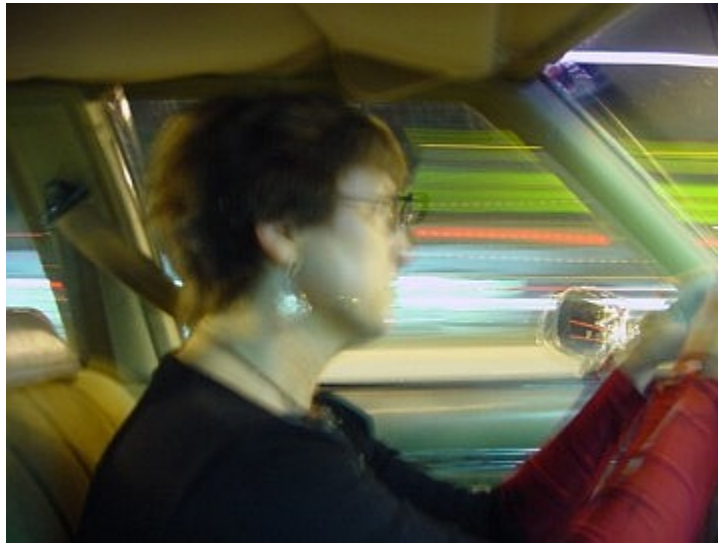
the wavy lines more interesting
than the straightness
imposed by the tripod



Soon I parked the car
and panned in rhythm
with cars creeping through the downtown



or people walking on the waterfront



Then against the blackness
I took 8 second shots of my wife
from the passenger side
as she drove her car
lights streaming behind her



and later musicians on stages

their movement painted
against the blank canvas
of the night



And somewhere along the way
I began to 'get it'
What I was doing was expressive
– as I had hoped –
but more than that
these shots were glimpses
of movement through time



Where the passing moment
was now smeared across the frame

THE END

Early Essay: The Digital Way To Experiment (1999)

Artistic experimentation in the computer age

I love to experiment.

I like to dive into uncharted waters and see what develops.

Even after shooting photographs for 30 years, my blood still runs faster when I try something new, when I am not sure how the photograph will turn out. Experimentation keeps me from getting stale as a photographer, from creating the same old competent photographs that are well crafted but that lack excitement. Experimentation keeps my photographic vision fresh; it keeps me from getting into a rut and allows me to add new tools to my bag of tricks once I have mastered a new area of exploration.

Just what do I mean by experimentation? I mean attempting to create an effect that has never been put on film before. Digital photography, in particular, is a very fertile area. Few of my assumptions about light sensitive material seem to apply. Electronic "film" behaves very differently.

Generally speaking the most interesting effects will occur at extremes, because it is at these "edges" that the normal relationship between light and film breaks down and something unusual happens. Here are some areas that I have explored with film and am exploring again with a digital camera:

#1. Extremes in exposure, i.e., under and over exposure. For example, I have exposed the digital camera in such dark light that I could barely tell there was a picture present. However, when I downloaded, lightened and color corrected the image, I got an atmospheric charcoal effect. In another example, I overexposed the light from a neon sign onto my face. This created some unusual colors and contours.

#2. Very slow and very fast shutter speeds. Slow motion usually produces blur but sometimes can produce a different effect, an almost multiple exposure effect. A very fast shutter speed will make subjects in motion look unreal; they will be frozen in time in a way that does not seem natural.

#3. Camera or subject movement combined with a slow shutter speed. Moving the camera with the subject's motion or against that motion can create fluid images full of energy. Combine this with a slow shutter speed and you are not talking about an ordinary photograph.

#4. Unusual light sources. There are now dozens of different lamps that put out wavelengths that are quite different from daylight or even household lights or

fluorescents. A yellowish street lamp can produce a brilliant and startling bright red glow that seems other-worldly, for example.

#5. Flare. I love flare. All lenses flare to some extent, and flare can produce unusual effects. Each lens and aperture design seems to produce its own unique signature.

#6. Extreme angles and distance can create dramatic results. "In your face" photographs have become one of the styles of the late 20th Century.

#7. All film and all light sensitive materials tend to favor some colors and subdue others. Kodachrome, for example, has a red bias. The classic photo of the red barn with Kodachrome made the barn scream with its red color. The same holds true for digital photography, but each person will have to test out the color bias for him or herself. I suspect that it is going to be different for each manufacturer.

#8. A swivel lens on a digital camera allows some very unusual self-portraits and other angles that would have been impossible before.

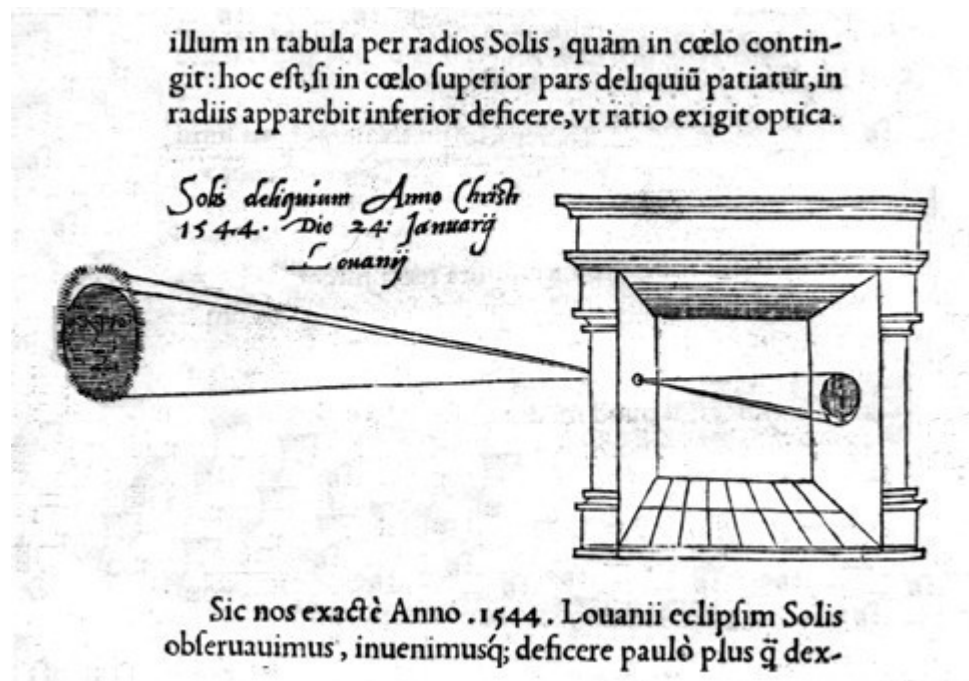
#9. The LCD screen on the back of digital cameras has a number of advantages over a traditional viewfinder, much of which remains to be explored. The immediate feedback means that a photographer can experiment and learn at an unprecedented pace. The LCD screen also allows a photographer to hold the camera out or up at a distance and still see the image. For example, he or she could hold the camera over a crowd or over a wall and frame the image.

#10. The biggest surprise was the effect of the software built into the camera. Sometimes the compression software which is usually based on a JPEG algorithm did not "see" the dots correctly and mistook lines in the images. I have been using a very simple Casio QV-100 camera, and I cannot say whether this happens with other cameras.

So there you have my mini-course in photographic experimentation. And we have just begun to scratch the surface, because what happens if you start to combine effects? Let's say, for example, that you take low light pictures under an unusual artificial light of moving objects. And let's say that you animate them. Now where would you find such a subject? In my case, I found it at a go-kart track.

A BRIEF HISTORY OF LIGHT & PHOTOGRAPHY

A 3 PART BLOG



A Brief History Of Light & Photography: Part 1 (2012)

From Prehistory To The Renaissance

INTRODUCTION

The word photography comes from the Greek and means "light writing" (photo = light, graphy = writing). We photographers are light artists. Drawing with light is very different than drawing with a pen. It requires light sensitive material, optics, dark enclosures and the ability to fix an image so that it does not fade. The history of how all this came to be is intertwined with our understanding of our place in the solar system and the universe. Is there any story more epic, more fascinating?

The modern scientific understanding of light evolved along with the development of the camera and photography -- making photography a unique art form that has always been inseparable from science. Digital photography, for example, came about as a result of the discovery of quantum physics, specifically the insights of Albert Einstein. My mentor, Ross Scroggs who ran the UNC-CH photo lab and who had worked at Kodak for decades, used to call photography that "odd hybrid discipline that combined optics, physics and chemistry." Today we might say: that combines optics, physics and computers.

The development of optics/photography is closely related to astronomy with Galileo, Kepler, Newton, Maxwell, Einstein and Hubble making significant contributions in both fields. In fact, Kepler coined the term "camera obscura" which has been shortened today to "camera." The words come from Latin in which "camera" means "vaulted chamber/room" and "obscura" is translated "dark" so a camera is a "dark chamber/room" -- and the early camera obscuras were quite large, room size in fact -- so a dark room was an accurate description. In addition, starting as early as 1840, cameras were designed to take photographs with astronomical telescopes. After 1900 large telescopes were optimized for photography rather than for observation -- making them essentially telephoto cameras.

In this timeline, I could not help mentioning how often intuition, imagination, accident, spiritual feelings and even poetry played key roles in the scientific understanding of light. While these are more often associated with art, this timeline shows that science and art are often closely related.

I believe this timeline also shows that since the very beginning photography has evolved and will continue to evolve. And as our understanding of light itself improves, this will change photography as well.

PREHISTORY

Our feelings about light undoubtedly go back millions of years -- to the changing light of the seasons and the discovery and use of fire. Light is fundamental to existence. And because of this it has always had important religious significance. Many of the 'light scientists' held a deeply spiritual feeling for the subject.

== In Christianity in the third line of the Bible, "God said, 'Let there be light'; and there was light. And God saw that the light was good." (Genesis, 1:3-4) Light is a key element in the celebration of Christmas.

== The Festival of Lights, known as Diwali, is a major event celebrated by Hindus and many others in South Asia and other places around the world. For the Hindus it marks the triumph of the return of the good deity Rama and the death of the evil demon Narakasura.

Schema huius præmissæ diuisionis Sphærarum .

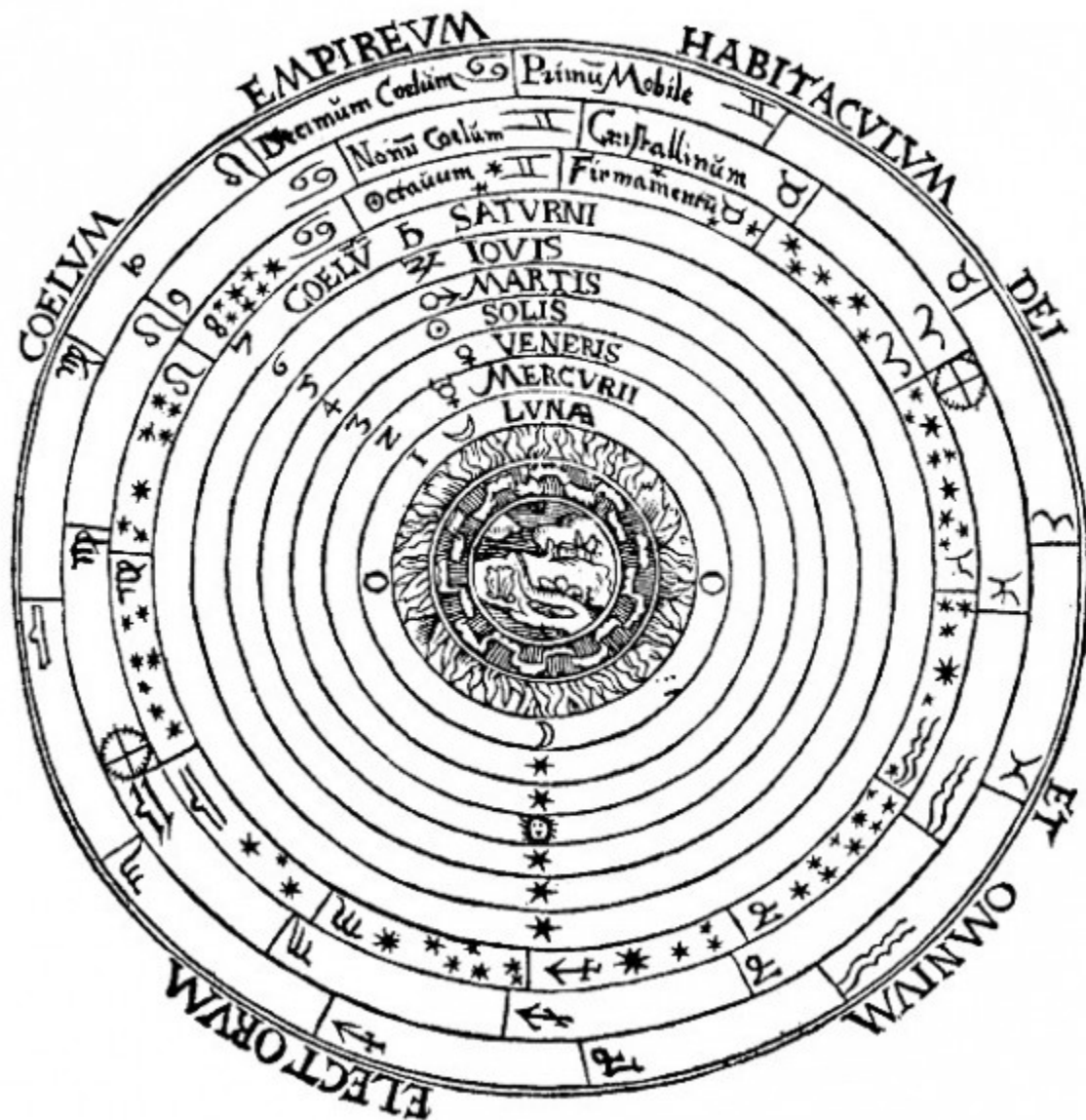


ILLUSTRATION: Beginning around 200 A.D. and for the next 1400 years the geocentric astronomy of Ptolemaeus was the accepted view of the universe. This picture is a drawing of the Ptolemaic System which fairly accurately described the movement of the sun and planets as circles that orbited the Earth, although the full explanation involved many epicycles within each orbit. It was the first scientific view of the universe. The Earth was in the middle -- surrounded by circles of water, air and fire then followed by the moon, sun, planets and finally the stars. *De Sphaera Mundi*, 1230, Johannes De Sacrobosco. (commons.wikimedia.org)

THE DISCOVERY OF THE CAMERA

According to legend, the discovery of the camera may have begun thousands of years ago with desert nomads who saw scenes outside their tents projected upside down on the back wall when a tiny hole in their dark tent let in light during the bright day. This phenomena was known even to the ancient Greeks, such as Aristotle, and others.

Personal note: I experienced this by accident myself, when I stayed in a room on the Mediterranean with two shutters that when closed completely darkened the room. I awoke one morning to see crashing waves in bright sunlight projected on the back wall, as a tiny hole between the shutters created a pinhole camera in my room.

1000 YEARS AGO

In 1021 Arab scientist Alhazen defined the basic nature of light and optics scientifically in his seven volume *Book of Optics* -- considered the most important book on the subject for the next 600 years.

Alhazen was the first to use experimental methods and logical reasoning to define the essential aspects of light: that it emanated from an outside light source, that light traveled in rays, and that the rays traveled in straight lines. Although not the first to use a camera obscura, he was the first to describe how to construct one; in addition he described how to magnify an object with a lens and to make a sharper projected image with a pinhole by reducing the size of the pinhole.

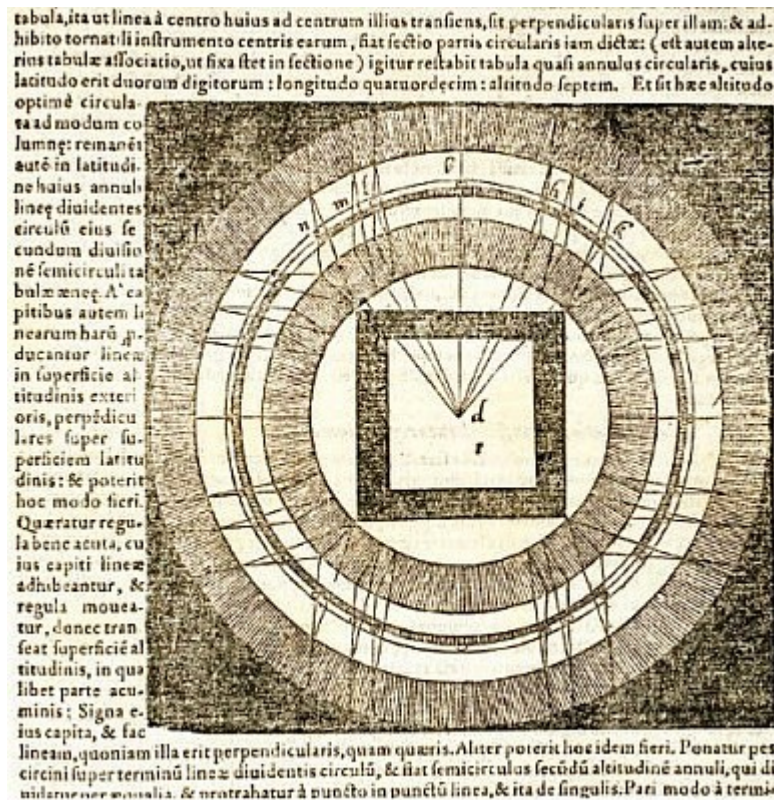


ILLUSTRATION: Page from the Latin translation of Alhazen's *Book of Optics*, published in 1572. (Niels Bohr Institute)

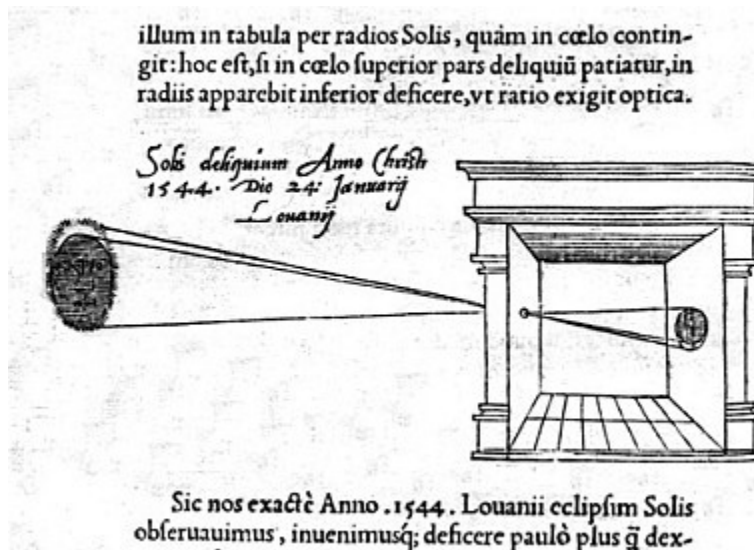


ILLUSTRATION: A building with a pinhole, used to watch an eclipse, based on ideas from Alhazen's *Book of Optics*. This is the first illustration of such a room. *De Radio Astronomico Et Geometrico Liber*, 1545, Gemma Frisius. (marygrove.edu)

Roger Bacon And The Invention Of Eyeglasses

In 1267 Friar Roger Bacon of England brought Alhazen's discoveries to the west in his book *Opus Majus*.

Reading a translation from Arabic to Latin of Alhazen's *Book of Optics*, he was the first in the west to fully describe a magnifying glass. This led to the creation of eyeglasses in Italy around 1286. Roger Bacon also made major contributions to the science of optics, the camera obscura and "focused on the spiritual quality of light as the fundamental unit of all creation." (<http://h2g2.com/dna/h2g2/A2875430>).

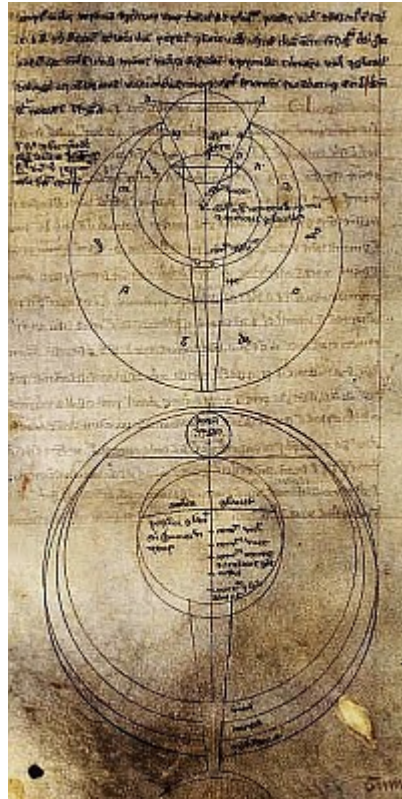


ILLUSTRATION: A page from Roger Bacon's book, *Opus Majus* in 1267 -- relating to his exploration of the properties of optics. (commons.wikimedia.org)

During the Renaissance pinhole imagery and the camera obscura was discussed by: Leonardo da Vinci in his *Codex Atlanticus* (1502), Gemma Frisius in his book *De Radio Astronomico Et Geometric Liber*, 1545 (see illustration earlier) and Giovanni Battista della Porta in *Magiae Naturalis*, 1558. Plus optical and viewing refinements to the camera obscura were suggested by Girolama Cardano in 1550 and Daniel Barbaro in 1569. During this time the camera obscura became widely used for both scientific and artistic purposes.



ILLUSTRATION: A modern building used as a camera obscura at UNC-Chapel Hill, my alma mater. You can see the pinhole about half way up the second panel, left of the door.
(en.wikipedia.org, gradschool.unc.edu)

A Brief History Of Light & Photography: Part 2 (2012)

The Camera Moves And Photography Is Born
From Kepler & Galileo to the 19th century

THE CAMERA BECOMES PORTABLE

Kepler, Johannes

== Contributions to optics and photography:

In 1604 Kepler published the first modern western book on optics in *The Optical Part of Astronomy (Astronomiae Pars Optica)*, designed the first portable camera obscura with a rotating lens and mirror to project the image onto a drawing board in 1620 and coined the term 'camera obscura' which has today evolved into the modern word 'camera'.



ILLUSTRATION: A drawing of a Kepler movable tent-type camera obscura -- the type designed by Kepler in 1620. (commons.wikimedia.org)

== *Contributions to astronomy:*

Building on the Copernican theory of a heliocentric solar system about 60 years earlier, Johannes Kepler was the first to accurately describe the orbits of the planets.

== *About his insights:*

Although a scientist who spent decades making careful measurements, observations and calculations, his inspiration was spiritual; he wanted to discover a harmony of the spheres, a medieval idea that described the harmonious relationships between earthly and heavenly realms. In his book *Harmonices Mundi* in 1619 (*The Harmony of the World*), Kepler laid out the third law of planetary motion along with an assertion that the movement of the planets related to each other in musical harmony. Kepler's three laws of planetary motion were fundamental to Newton's discovery of gravity.



ILLUSTRATION: Kepler's musical notations for the known planets, showing the notes he associated with each planet, from his book *Harmonices Mundi*.

The Invention Of The Telescope

In 1608 Hans Lippershey, an eyeglass maker, invented the telescope.

== *Accident played a key role:*

According to legend, two children were playing with spectacle lenses in an eye glass shop owned by Lippershey in the Netherlands. They happened to line up two lenses so that a highly magnified image of a weather vane on top of a church appeared. This chance discovery led to the telescope. Lippershey used a tube to position and secure the lenses which he called the "looker" in 1608; it was the first telescope.

Galileo Galilei

== *Contributions to optics:*

Starting in 1610 Galileo increased the magnifying power of the telescope up to 30X.

== *Contributions to astronomy:*

While Galileo did not invent the telescope, he made a marked improvement on what was being constructed at the time. When he turned this instrument to look at Jupiter, he discovered four moons circling the large planet. This observation led him to realize that Copernicus was correct, and that like the moons of Jupiter, the Earth and the other planets were circling the large Sun. Confirmation of this over the next hundred years or so, led to a completely new understanding -- because humans were no longer at the center of the universe as had been previously thought in the Ptolemaic System (see Part 1 of this series of articles). In addition it led to scientific observation and measurement becoming the primary way that the world was explored and that truth was established.

Newton, Isaac

== *Contributions to optics and the understanding of light:*

In 1704 Isaac Newton defined light as particles in his book, *Opticks*, and also did extensive experimentation with white light and prisms in addition to creating the first reflecting telescope.

== *Contributions to astronomy:*

Newton discovered gravity and then was able to calculate with precision this force that caused apples to fall to the ground and planets to circle the sun, creating the first great unified theory. His three books, *Philosophiæ Naturalis Principia Mathematica* (often shortened to the *Principia*), are considered perhaps the most important books in science.

== *About his insights:*

After John Maynard Keynes studied Newton's papers on alchemy and other subjects, he said "Newton was not the first of the age of reason. He was the last of the magicians..I fancy his pre-eminence is due to his muscles of intuition being the strongest and most enduring with which a man has ever been gifted...Certainly there can be no doubt that the peculiar geometrical form in which the exposition of the *Principia* is dressed up bears no resemblance at all to the mental processes by which Newton actually arrived at his conclusions."



ILLUSTRATION: This is a replica of Newton's reflecting telescope. Newton's redesign of the telescope became the basis for the space-based Hubble telescope and most other large modern telescopes both on the ground and in space. (commons.wikimedia.org)

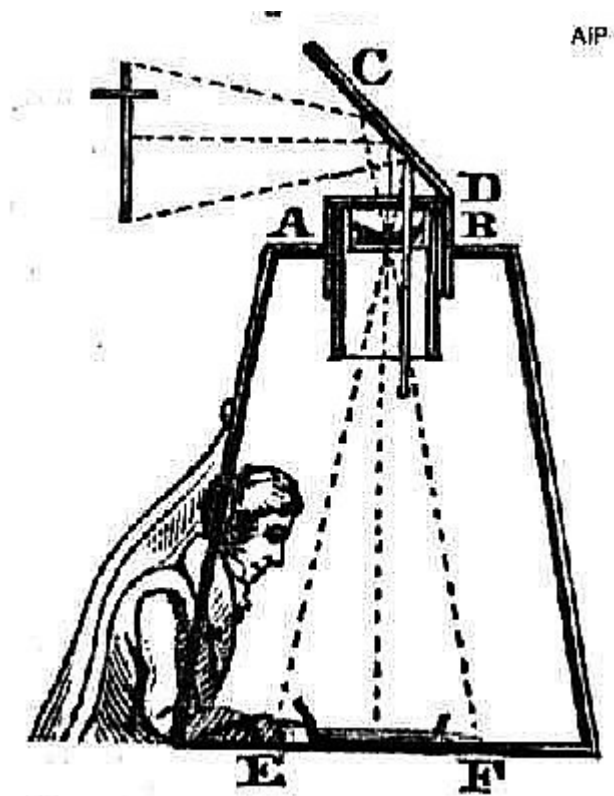


ILLUSTRATION: A sophisticated camera obscura design from the book *A Treatise on Optics* by Sir David Brewster. (commons.wikimedia.org)

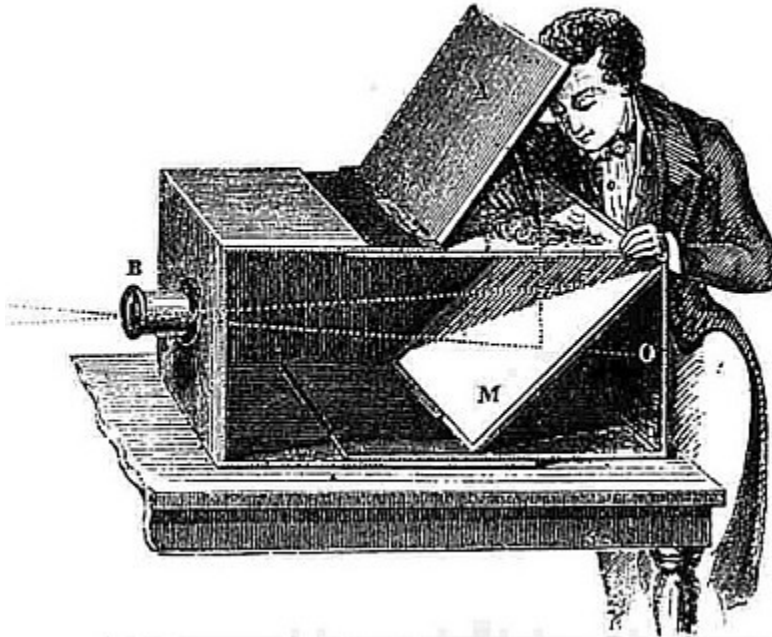


ILLUSTRATION: By the 18th century the camera obscura had shrunk down to a fairly small tabletop design pointing the way to studio cameras a hundred years later.
(commons.wikimedia.org)

PHOTOGRAPHY IS BORN

The Discovery Of Light Sensitive Material

In 1727 Johann Heinrich Schulze noticed that silver nitrate turned dark when exposed to light. Silver halides became the basis for camera plates and film about 100 year later.



ILLUSTRATION: 1827: Nicéphore Niépce shot the first permanent photograph taken with a camera. The exposure required eight hours. The photo is known as *View from the Window at Le Gras*. His camera was placed in the upper story window of his house and made a photo of the buildings below. (commons.wikimedia.org)

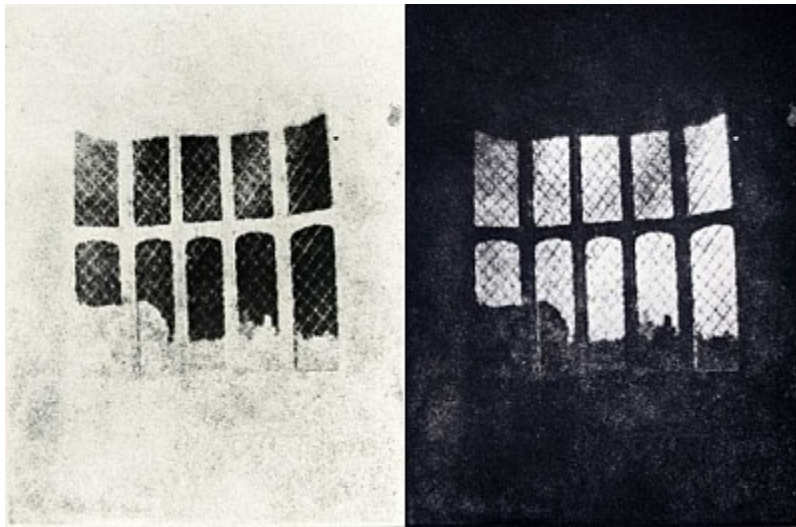


ILLUSTRATION: 1835: *Latticed window in Lacock Abbey* by Henry Fox Talbot. The positive print on the right was made from the oldest negative known to exist, left. Talbot's negative process transformed photography as it allowed multiple copies to be made from one negative and also allowed darkroom developing and exposing techniques to be used to make the final print. (commons.wikimedia.org)

The Fixing Process

While Niépce and Louis Daguerre, another pioneering photographer who collaborated with Niépce and invented the daguerreotype, were able to 'fix' their photographs so that they did not fade -- it was not until 1839 that sodium thiosulfate,

known to photographers as 'hypo', became the standard fixing chemical and has been used for that purpose ever since with film photography.



ILLUSTRATION: A typical studio camera of the 19th century. By about 1840 photographic material was sensitive enough for exposures below 60 seconds, which allowed for stiff but popular portraits. (commons.wikimedia.org)

Astronomy Merges With Photography

Starting as early as 1840, cameras were designed to take photographs with astronomical telescopes. After 1900 large telescopes were optimized for photography rather than for observation -- making them essentially telephoto cameras.

Maxwell, James Clerk

== Contributions to a scientific understanding of light:

In 1865 Maxwell wrote *A Dynamical Theory of the Electromagnetic Field*, a book that united light with other forces. He coined the term 'electromagnetic spectrum' and stated that light was simply part of a continuum from radio waves to x-rays. Finally he asserted that light, therefore, had to be considered a wave and not a particle as Newton had said. (Stay tuned -- as Einstein had the last word on this and what he said was crucial to the invention of digital photography.)

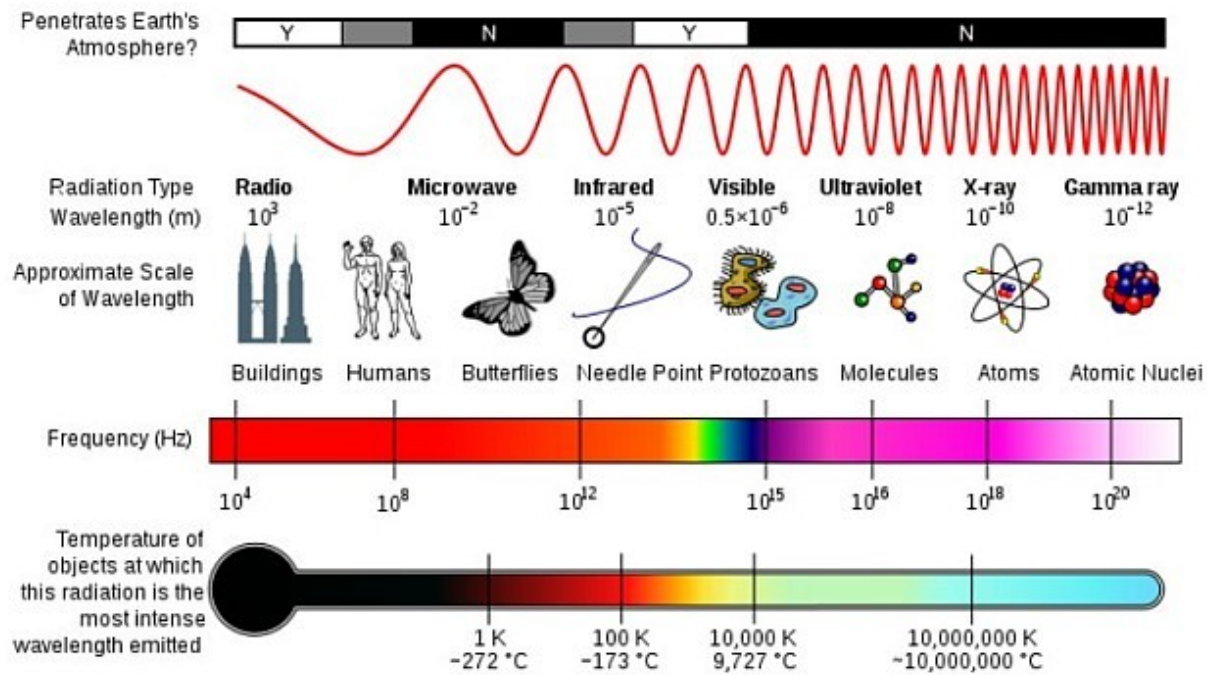


ILLUSTRATION: Diagram of the electromagnetic spectrum. (commons.wikimedia.org)

== Maxwell's contributions to photography:

In 1855 Maxwell deduced that if an object were photographed three times on transparent black and white film -- each time with a different filter of red, green and violet -- a full color image would result from the combined photographs when projected together using the corresponding filters.

In 1861 Maxwell made the first color photograph using his method, and it has become the "the basis of nearly all subsequent photochemical and electronic methods of colour photography."
(en.wikipedia.org/wiki/James_Clerk_Maxwell)

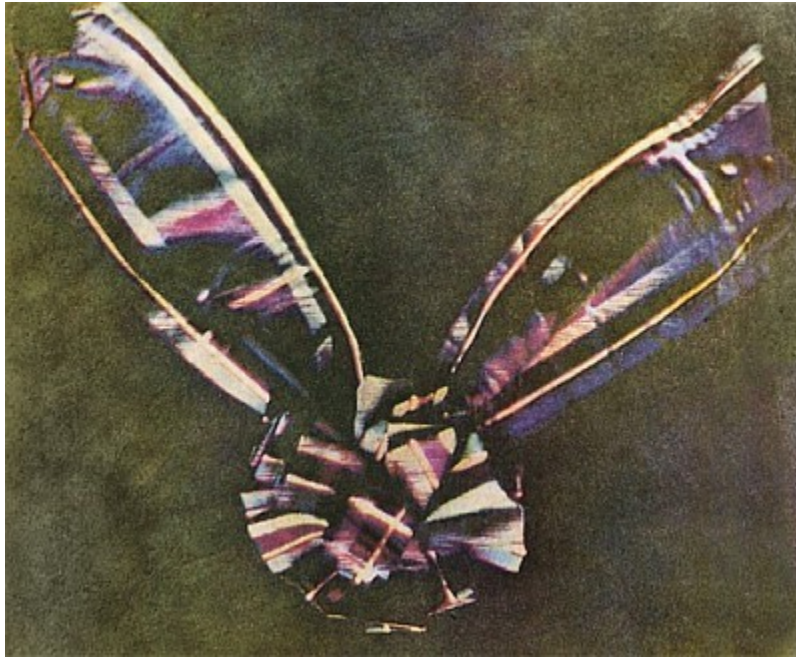


ILLUSTRATION: 1861: The first color photograph -- taken by Maxwell and proving what came to be known as his 'principle of three-colour analysis and synthesis'. (commons.wikimedia.org)

== Maxwell's contributions to astronomy:

Interested in a wide range of scientific questions, Maxwell wrote a paper *On the Stability of Saturn's Rings* -- which had been a nagging question to astronomers -- and explained how these rings were put together.

== About his insights:

Although interested in a variety of scientific questions, Maxwell also wrote poetry throughout his lifetime.



ILLUSTRATION: By 1878 photography had become quite sophisticated allowing for much shorter exposures. For example, Eadweard Muybridge perfected a method for taking sequential photographs of a horse galloping -- at a fast shutter speed of 1/1000 second. (commons.wikimedia.org)



ILLUSTRATION: 1894: The craft of photography had become so commonplace that an Impressionist painter such as Toulouse-Lautrec painted a poster advertising the services of a photographic studio. Some Impressionists and other painters even used photography in their work -- such as Degas and Eakins. (commons.wikimedia.org)

A Brief History Of Light & Photography: Part 3 (2012)

The Modern Era:

Kodak, SLRs, digital cameras and the future of photography

PHOTOGRAPHY BECOMES AVAILABLE TO THE GENERAL PUBLIC

Kodak And The Brownie Camera

Starting in 1878 George Eastman concentrated on making dry plates that were much easier to work with than the former wet plate process that required immediate exposure and development. In 1889 his company, Kodak, produced the first manufactured flexible transparent roll film. In 1900 the company mass produced the Brownie camera. It was easy to use due in part to the simplicity of roll film. Marketed as the everyman camera, it was a device that anyone could get decent snapshots with, as long as they followed Kodak's rather odd directions (see below). Photography then changed from the specialized craft it had been to an activity that was available to the general public.

Quote from *the Brownie Manual*:

"When making snapshots...the subject should be in broad, open sunlight, but the camera must not. The sun should be behind your back or over the shoulder."

NOTE: While these instructions guaranteed a properly exposed photo, the bright sunlight also guaranteed the lighting to be harsh and the people probably squinting because the sun was in their eyes. Kodak promoted the word 'snapshot' to market its message of easy quick photography. And snapshots have been getting a bad rap ever since.



ILLUSTRATION: Similar to the very first Brownie of 1900, this picture shows the Brownie 2A that was available starting in 1907. (commons.wikimedia.org)

The Cultural Effect Of The Brownie

The Wikipedia article on the Brownie included this fascinating comment: "In 1908, the Austrian architectural critic Joseph August Lux wrote a book called *Künstlerische Kodakgeheimnisse (Artistic Secrets of the Kodak)* in which he championed the use of the camera for its cultural potential. ...he argued that the accessibility the camera provided for the amateur meant that people could photograph and document their surroundings and thus produce a type of stability in the ebb and flow of the modern world."

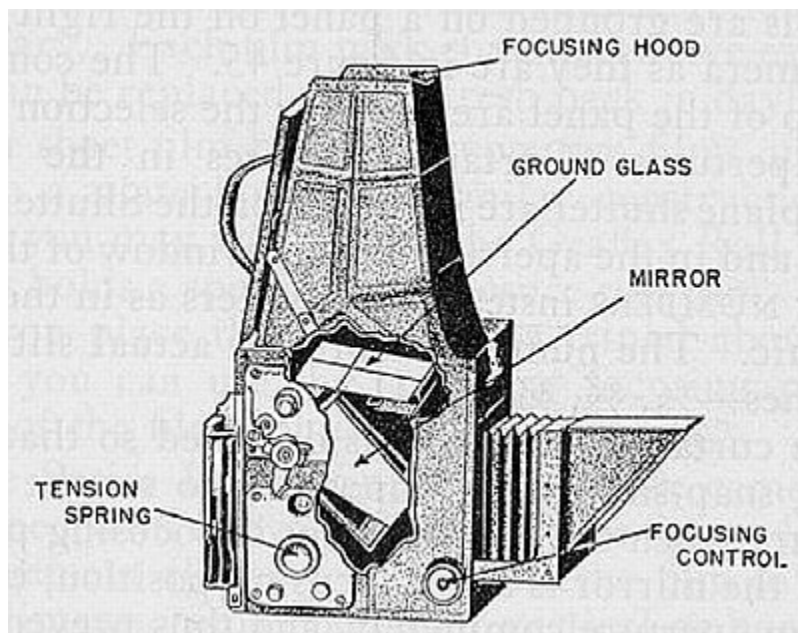


ILLUSTRATION: 1898: The first single lens reflex, the large format Graflex was bulky and cumbersome, but nevertheless quite portable and a work horse. It was the camera of choice for many professional and famous photographers such as Dorothea Lange and Alfred Stieglitz.
(*Naval Training Course*, Vol. 1)



ILLUSTRATION: This picture shows Dorothea Lange with her Graflex finding just the right angle for a shot in the 1930s. (loc.gov)

Einstein, Albert

== Contributions to an understanding of light which led to digital photography:

In 1905 Albert Einstein published a paper explaining the photoelectric effect; this happened when light shown on certain metals caused electrons to be ejected. His

explanation became the basis for digital photography and was an important finding that led to quantum mechanics. In his paper *On a Heuristic Viewpoint Concerning the Production and Transformation of Light*, he wrote that light acted as both a wave and a particle -- thus agreeing with and contradicting both Maxwell and Newton. When 'light quanta' as he called these wave-packet particles, now called photons, hit certain metals, electrons were ejected based on the intensity and frequency of the light. Einstein won the Nobel prize in part for this explanation which is at the heart of sensors in digital cameras today.

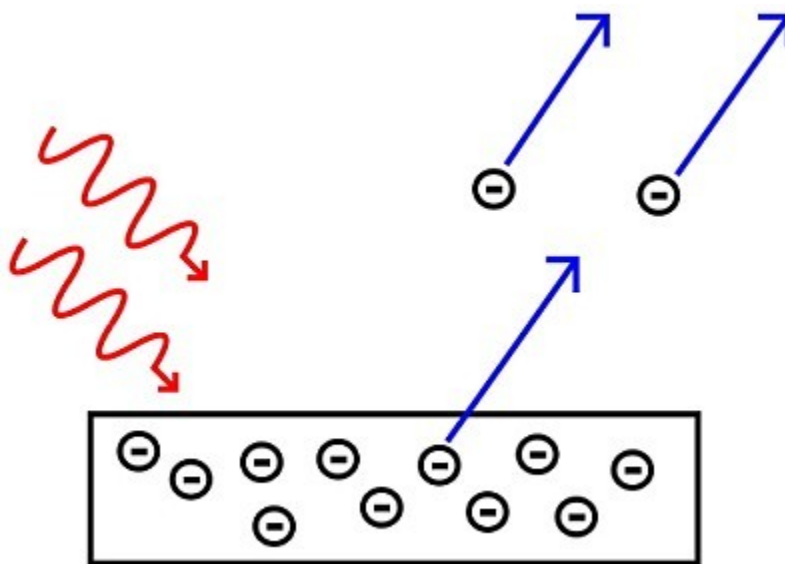


ILLUSTRATION: Quoted from Wikipedia: 'The photoelectric effect. Incoming photons on the left strike a metal plate (bottom), and eject electrons, depicted as flying off to the right.'
(en.wikipedia.org/wiki/Albert_Einstein)

== *Einstein's contributions to astronomy:*

Einstein redefined the universe as a space-time continuum. And he redefined gravity as a warp in space-time. In addition he asserted that time itself was relative. In short he completely changed the accepted views of the physical laws of nature.

== *About his insights:*

When Einstein was 16 he played an imagination game in which he was chasing a beam of light -- other accounts say that he imagined riding a beam of light. This game he played with himself had an important role in his development of his theory of relativity. Considered a "thought experiment" it is now seen as one of the greatest imaginative endeavors by any scientist. This was only one of a number of thought experiments, in which he was able to visualize and see a series of events due to the imaginative circumstances that he had placed himself in. Like Newton, it was Einstein's intuition that guided him to the right results, not rigid scientific methodology.

NOTE ABOUT GENIUS: Both Newton and Einstein intuitively settled on light as an area of fruitful study, not knowing where

their investigations would take them. While their discoveries required methodical and scientific inquiry, the decision to concentrate on light was an intuitive one. Genius often senses which areas are the most promising. In a modern day example, Stephen Hawking focused on black holes which were not thought to be important and considered just an oddity in the universe. Decades later it was discovered that super massive black holes are at the center of most galaxies and are what, in fact, holds them together.

The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.

Albert Einstein

Hubble, Edwin

== Hubble's critical use of photography in astronomy:

In 1917 Hubble's Ph.D. dissertation, *Photographic Investigations of Faint Nebulae*, the furthest light ever recorded on film became the foundation for his later photographic research of the heavens. Up until then it was assumed that the Milky Way galaxy was the entire universe. Hubble showed that other galaxies existed outside the Milky Way and that the universe was expanding. Eventually this would lead to photographs of thousands of galaxies and the discovery that there were billions of other galaxies. In addition it became clear that the general expansion could be traced back to a single event, the Big Bang.

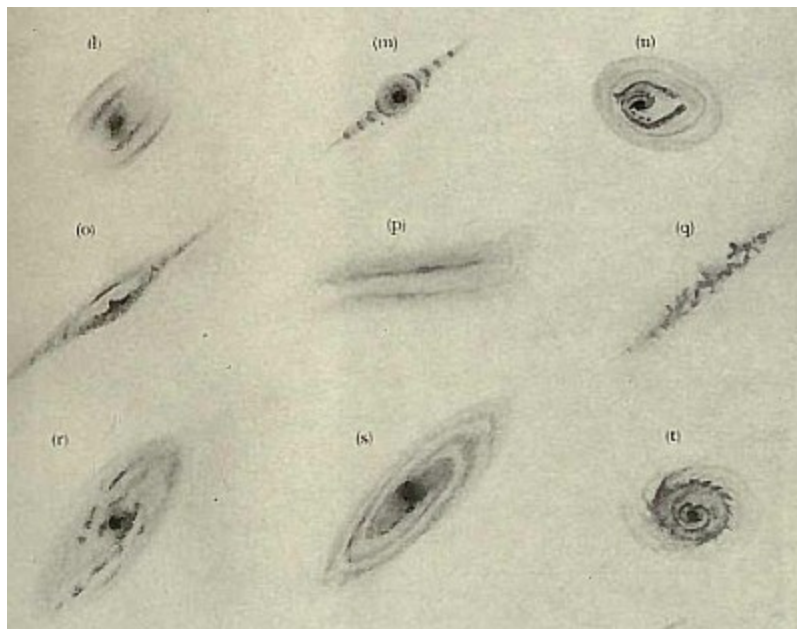


ILLUSTRATION: In 1917 Hubble included these photographs in his Ph.D. dissertation showing different types of nebulae that he had identified. (archive.org)

35MM BECOMES THE STANDARD FORMAT



ILLUSTRATION: 1925 Leica A: Leica introduced this first successful 35mm camera; compact and easy to carry, it still produced quality photos. Shortly after this the 35mm format became the standard. (commons.wikimedia.org)

The SLR: Single Lens Reflex

In 1936 Exakta marketed the first commercial SLR for 35mm. Although the SLR seemed modern, it was actually based on a design from about 250 years earlier -- a 'camera obscura' that used reflecting mirrors had been described in 1676. In addition this design for the camera obscura had been quite common for many years before the advent of the photographic camera.



ILLUSTRATION: In 1949 Contax produced the first 35mm pentaprism SLR which allowed eye-level viewing. The small easily hand-holdable SLR design became the camera of choice for photographers for the next fifty years. (commons.wikimedia.org)

DIGITAL PHOTOGRAPHY BECOMES AVAILABLE



ILLUSTRATION: 1995, Casio QV-10: This was the first digital camera with a LCD monitor which also served as the viewfinder. The monitor gave a real time viewing of a scene before the shot and then immediately showed the resulting photo. Even though it was relatively expensive compared to a film camera and had poor resolution, it became instantly popular.



ILLUSTRATION: 1998: Self-portrait of the author with an early Casio -- showing the LCD monitor -- the shot was taken using a mirror. (Rick Doble)



ILLUSTRATION: 2004: *Hubble Ultra Deep Field* digital photograph of distant galaxies taken by the Hubble space telescope: this shot of about 10 thousand galaxies more than 10 billion light years away was recorded using a 1 million second exposure, photographing the faintest light ever. Photography had now taken us to the edge of the universe in space and almost to the beginning of the formation of the universe, the Big Bang, in time. (nasa.gov)

Note About Our Changing Understanding Of The Universe

From Kepler to Galileo to Newton to Hubble, the perceived position of humans in the cosmos was radically diminished. No longer at the center of the universe, instead humans were on a small planet that orbited one of 100 billion stars in the Milky Way Galaxy. And to make matters worse, the universe contained a 100 billion other galaxies. Indeed we discovered we were just a tiny part of things. Yet the same technology which had revealed this -- in which photography had played a crucial role -- also gave us unprecedented power over our lives and our world.

The Effect Of Photography On Contemporary Culture

Whenever I see a story on the local news about a house fire or a flood, the family always comments on whether they were able to save the family photo album -- the one thing that is irreplaceable. Before photography time simply passed with no record. Today photography has transformed our perception of time and created an experience of the passing years which is unique to modern life. Now we can see how we looked last Christmas or a decade ago. And as we age, we are amazed that we ever looked so young. Photography is so precise that a well focused snapshot will show us details

that we had forgotten like the pattern on a tie or a raggedy doll in a child's arms. Time is now not something that slips by out of reach, but that we can hold onto just a bit.

THE FUTURE OF PHOTOGRAPHY

So Is Digital Photography The End Of Photography's Development?

Far from it -- photography has been changing from the very beginning. While there have been periods of relative stability such as 35mm and the single lens reflex, there have been other periods of rapid change. We are in one of those periods right now. A good example is the Lytro light-field camera that was just introduced this year -- using state of the art technology. Instead of taking a picture, it photographs 'light field data'. A photographer can go back later and decide where to put the focus. And while the advertised advantage of such a camera is today: "shoot now, focus later," I suspect that many other techniques will come about as a result of this technology.

"Light field photography was once only possible with 100 cameras tethered to a supercomputer in a lab. Today it's accessible to everyone in a camera that's small and powerful, but incredibly easy to use. Our goal is to forever change the way people take and experience pictures..."

Professor Ng explaining the Lytro light field camera

What Is In The Future?

2050?? We can only speculate, of course, but an obvious leap in technology would be an easy, cheap holographic system.

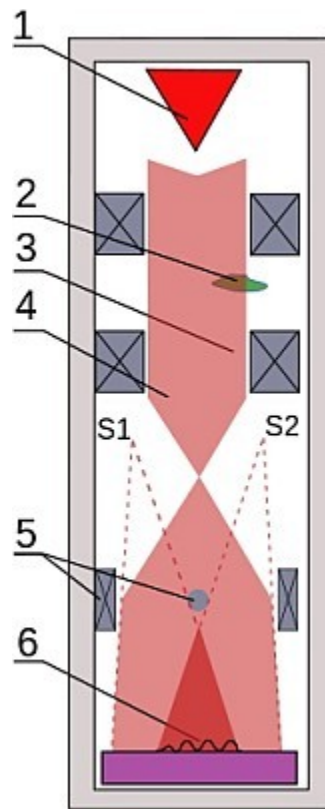


ILLUSTRATION: Holographic Photography?? -- This diagram is a 'Schema of electron holography: 1-electron source; 2-specimen; 3-object wave; 4-reference wave; 5-electron biprism; 6-hologram.' (picture and text from commons.wikimedia.org) BTW doesn't this look an awful lot like those early camera obscura diagrams in my previous blogs in this series? (commons.wikimedia.org)

More Ideas For Cameras Of The Future

== As an experimental photographer, my own wish-list includes an LCD monitor that would show me how a picture was 'building' in real time during a long exposure of 4 seconds, for example. Right now the monitor blacks out and I have to take an educated guess.

== Expect that photons, the particles of light, will be better understood at the subatomic and quantum level and that the resulting nanotechnology will again make major changes in photography. For example, today's digital cameras must translate voltage at a photosite (the point where light hits in a camera and that equals one pixel) using an analog to digital conversion. In the future this could be a purely digital task that would count the number of electrons that had been ejected when light hit -- and which could lead to an extended tonal range never before seen in photography.

From The Edge Of The Universe To Subatomic Particles (2011)

Amazing photographs that reveal the unseen

From a shot of thousands of galaxies at the edge of the universe to trails of subatomic particles that make up matter, photography has recorded it all. No other medium has this power.

This photo blog goes from the unimaginably large to the infinitesimally small. The photographs are in order, from large to small.

The modern world would not exist without photography and the modern world could not continue to exist without photography. The reach of the camera now extends from the tiniest particles taken during a few nanoseconds exposure (billionths of a second) to powerful spaced based cameras mounted onto telescopes that can take a rock steady million second exposure of 10,000 galaxies over 10 billion light years away. And, I might add, everything in between.

In addition the number of photographic and closely related techniques keeps expanding: from electron microscopes to x-rays to radar imaging to infrared and thermal imaging to a range of satellite systems plus composite photos, simulated coloring and false coloring and a variety of lighting for microscopic photography. And this list keeps growing.

And while photography can be manipulated, for the most part we see here an unfiltered reality. The deep space shot of galaxies -- each with a 100 billion stars -- are real. The tracks of subatomic particles that went smashing into each other are real. Photography has revealed a world we could not have seen otherwise. It has become our eyes that can see the unseen.

This gallery was inspired by the animated movie *Powers of Ten* made in 1968 by Ray and Charles Eames which you can view on the Internet. My gallery here displays actual photos -- most of which did not exist in 1968. Some of these even go beyond what Eames imagined. The first shot, for example, is about 10 billion light years away from Earth -- while Eames' movie stopped at a mere 100 million :) light years from Earth. The Hubble telescope saw 100 times further than even Eames could envision.

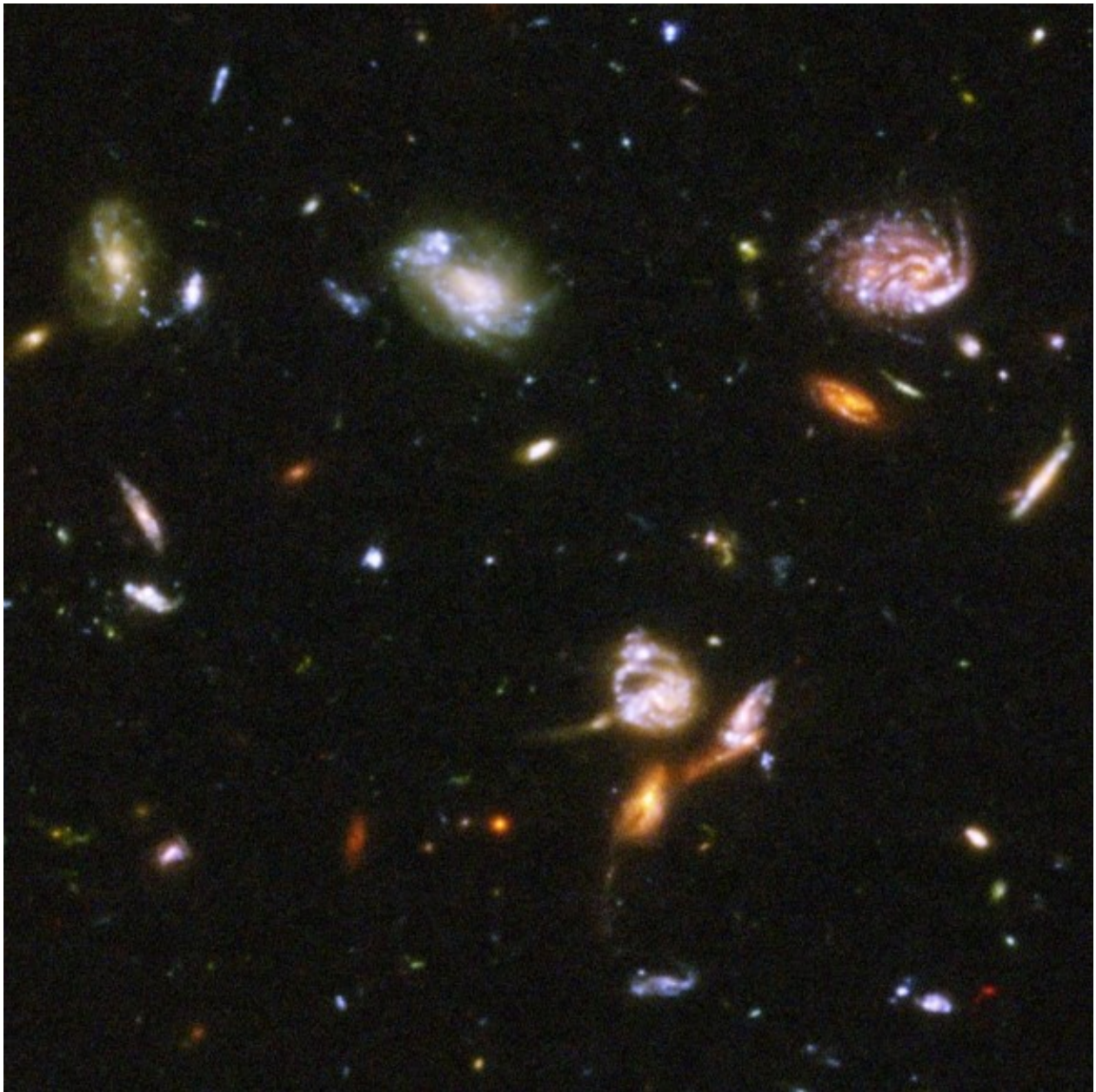
But why am I, a photographer primarily interested in the art of photography, displaying such a gallery? I believe that artists can learn from and be inspired by science. I have never understood the division between the two. The first abstract photographs that moved me deeply were of galaxies and of microscopic patterns.

NOTE: Using public domain photos available on the Internet, I was only able to display a progression from large to small, so

each step is not necessarily a power of ten.



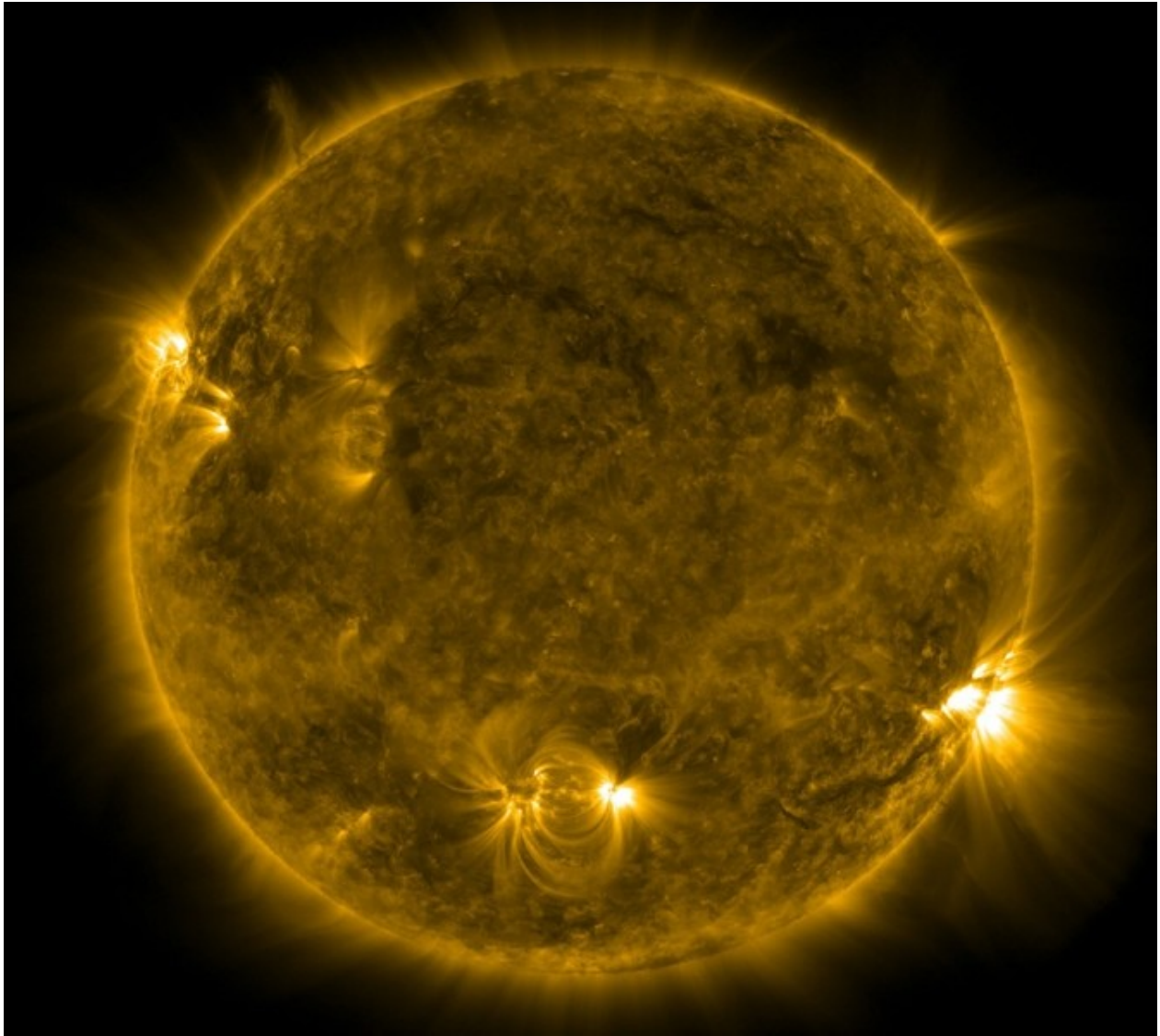
About 10,000 galaxies are in this 1 million second shot taken by the Hubble telescope at the edge of the Universe about 13 billion light years away. *Hubble Ultra Deep Field*. (NASA, nasa.gov)



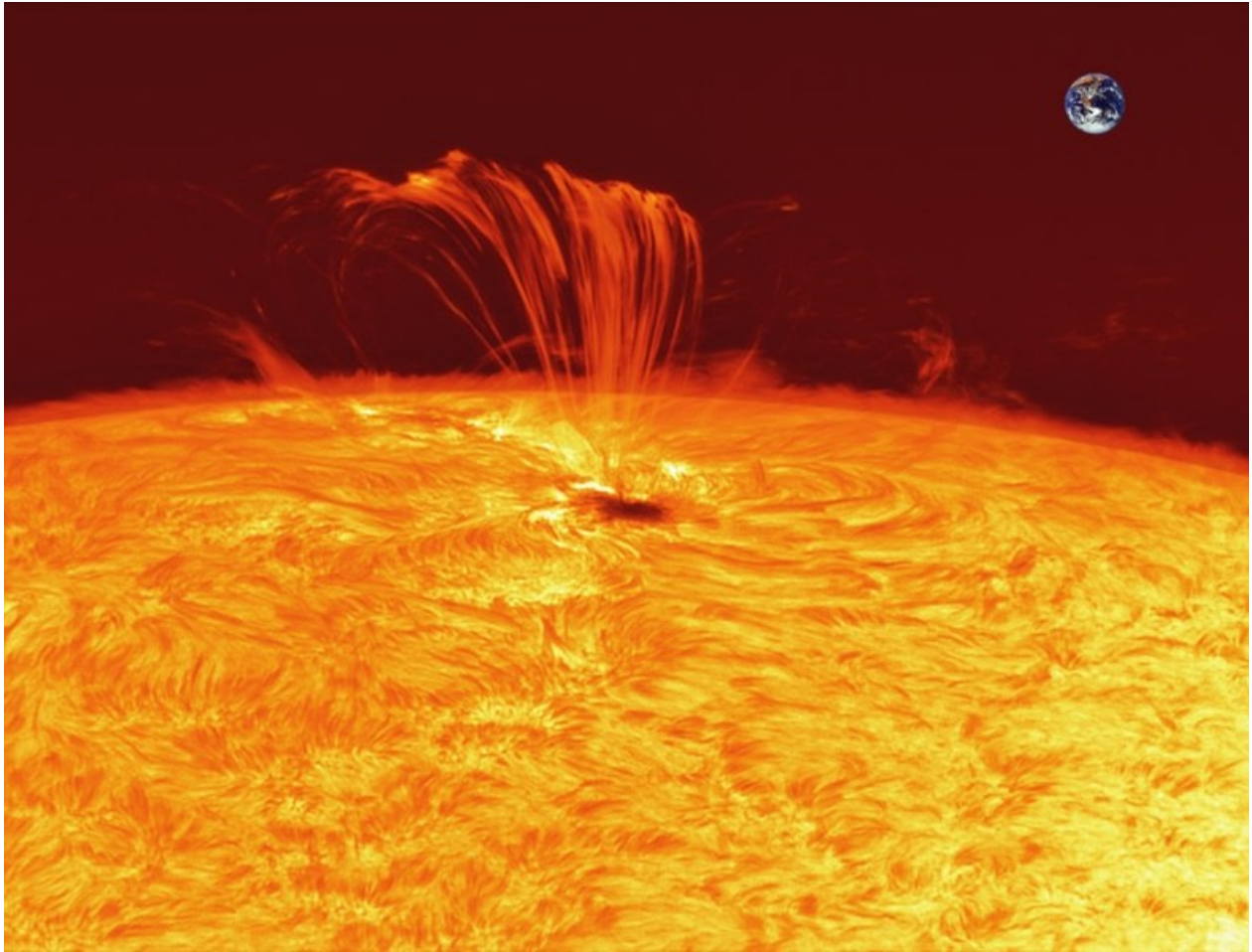
Detail *Hubble Ultra Deep Field* -- see 1st photo for specs. (nasa.gov)



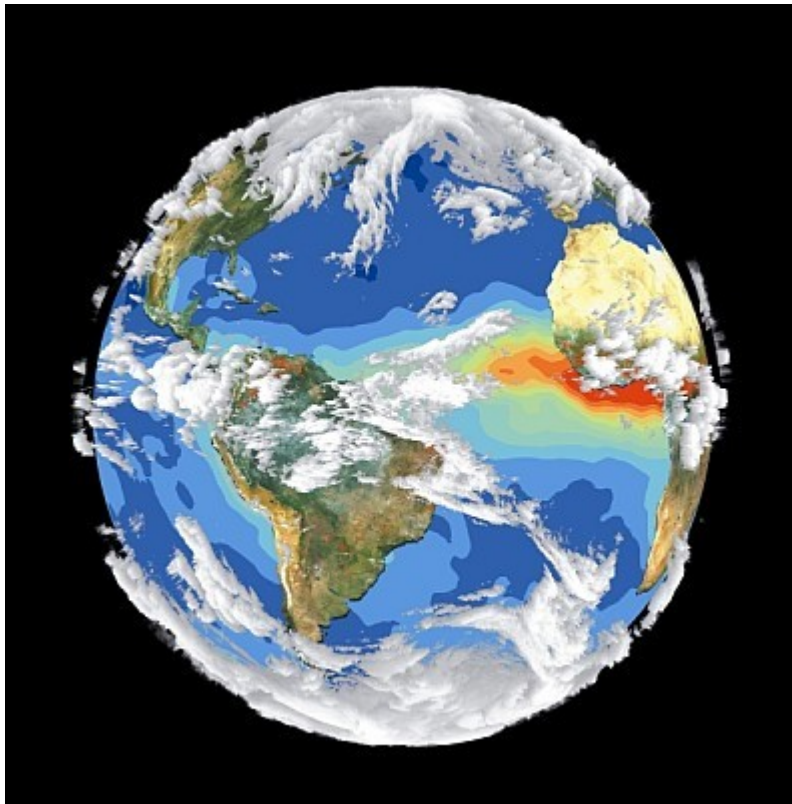
Colliding Spiral Galaxies. (nsf.gov)



Our Sun: "Loops and arcs trace the glowing plasma suspended in magnetic fields above solar active regions." Quote & photo from NASA. ([nasa.gov](https://www.nasa.gov))



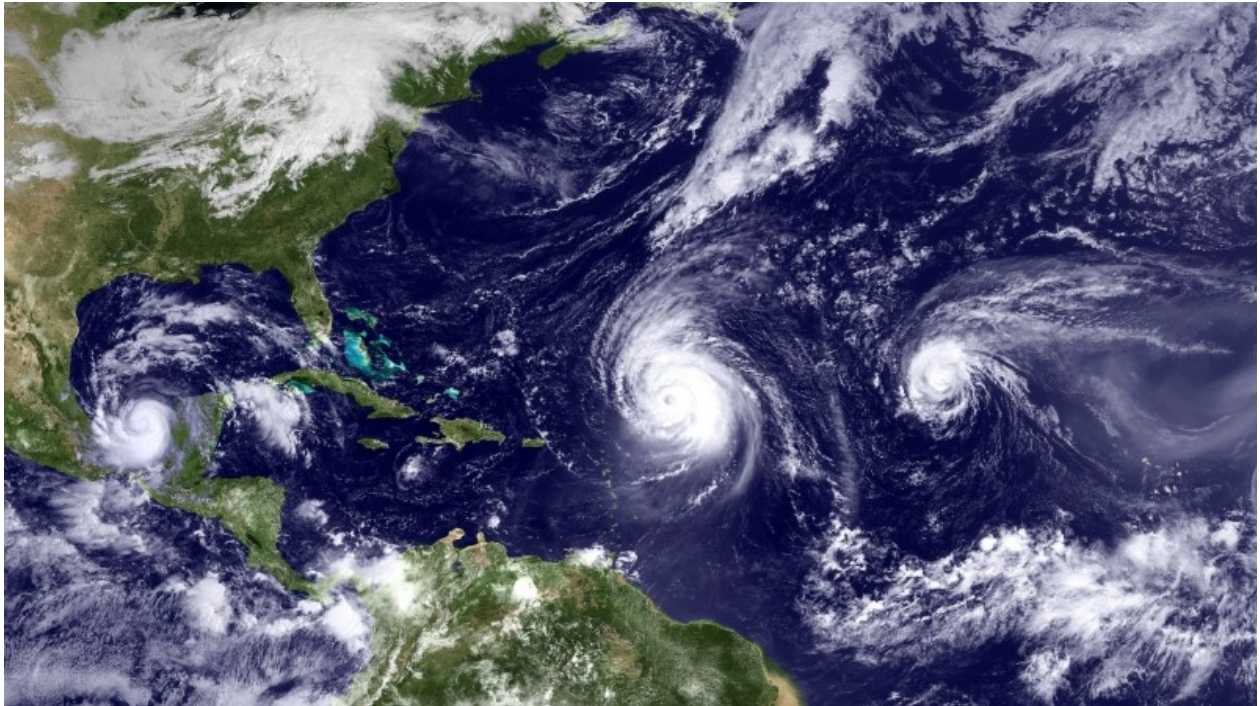
Solar flare showing relative size of the Earth upper right. (nasa.gov)



Satellite Image of Earth's Interrelated Systems and Climate: composite photograph. (nasa.gov)



A composite image of Earth's city lights from satellites. (nasa.gov)



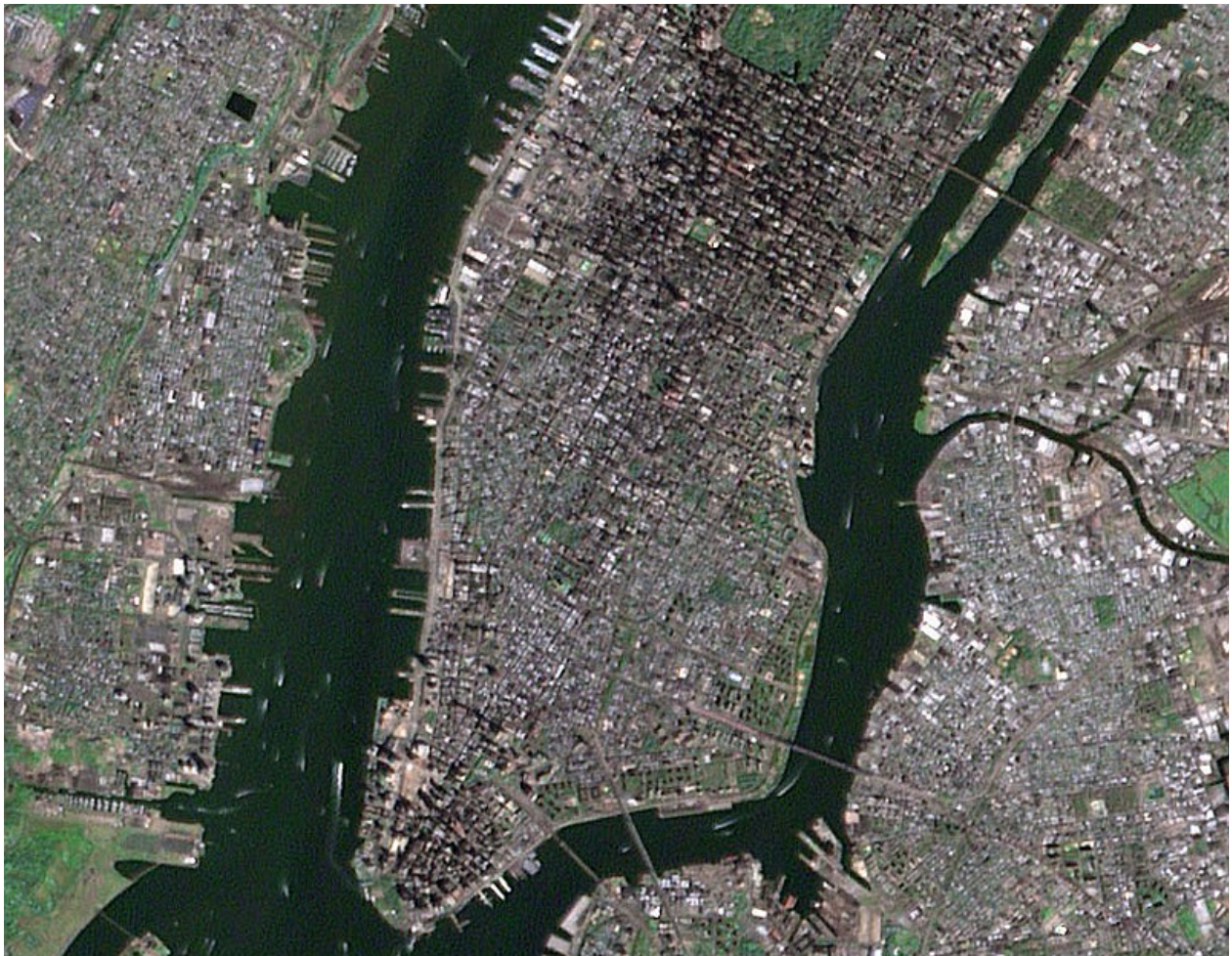
Hurricanes Igor, Julia & Karl off the east coast of the USA, Sept. 2010. (nasa.gov)



"France viewed by NASA Shuttle radar-imaging." Quote & photo from NASA. (nasa.gov)



"Image of Los Angeles from NASA's Shuttle Radar Topography Mission (SRTM)." Quote & photo from NASA. (nasa.gov)



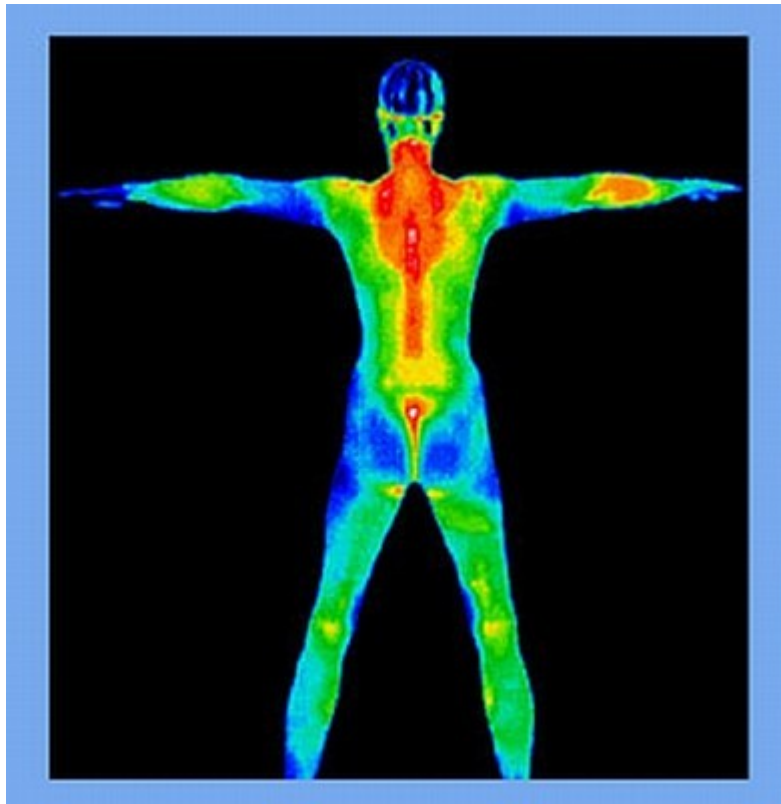
Manhattan, New York City, satellite view. (nasa.gov)



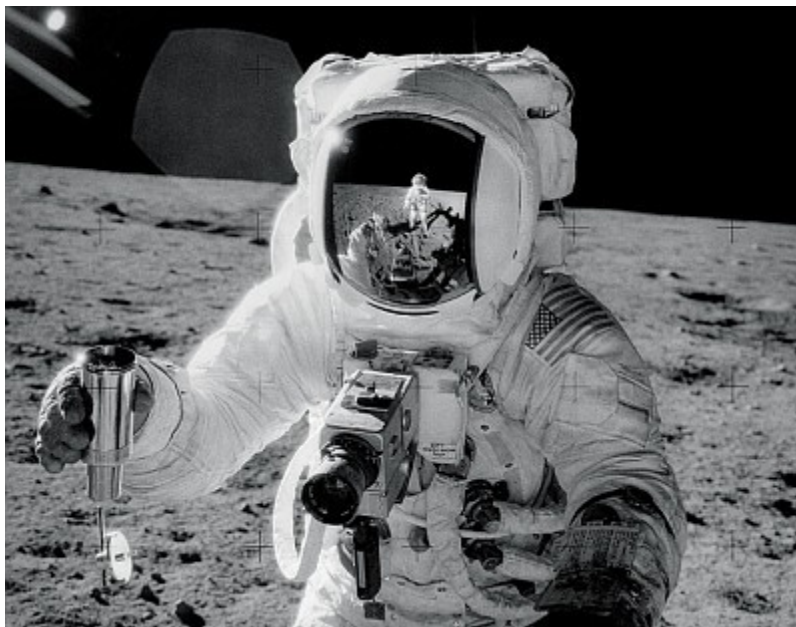
Aerial view, Richmond, Virginia. (Library of Virginia)



Normal and infrared shot of the same tree in New Zealand by Daniel Schwen.
(commons.wikimedia.org)



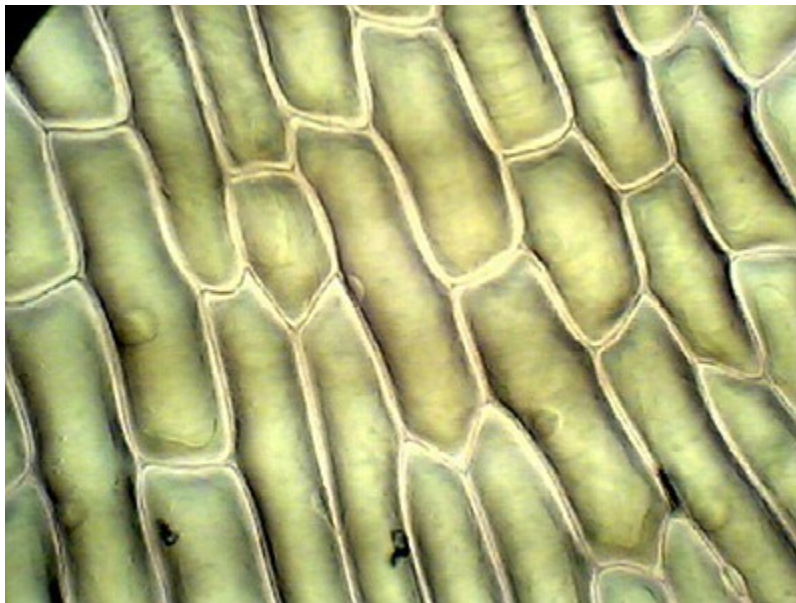
Thermal/infrared photograph of a person's body heat, false colors. "Colors indicate increases or decreases in infrared radiation emitted from the body surface." Infrared radiation from a person's body created this infrared photograph. Quote & photo from commons.wikimedia.org.
(commons.wikimedia.org)



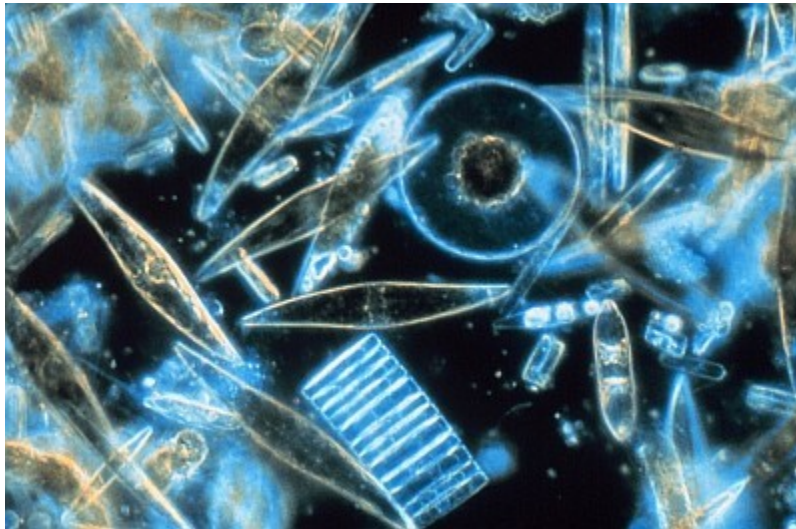
Man on the moon. (nasa.gov)



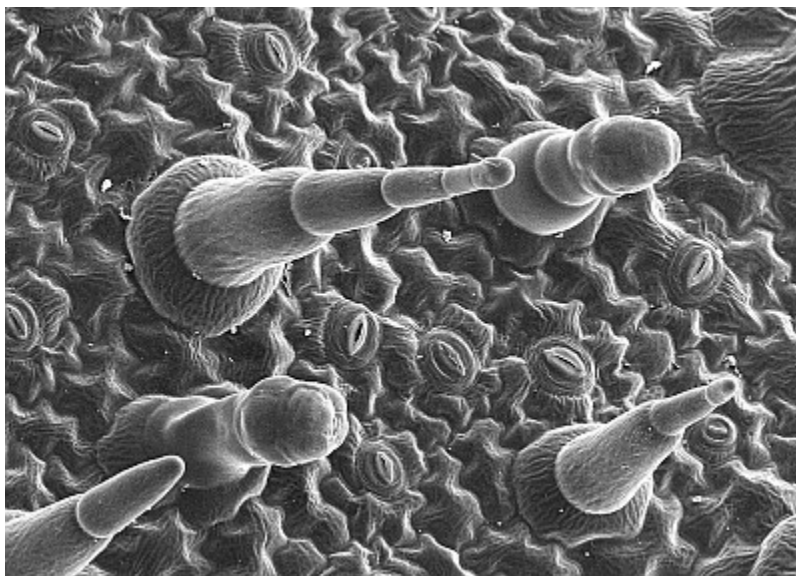
X-ray of hand. (commons.wikimedia.org)



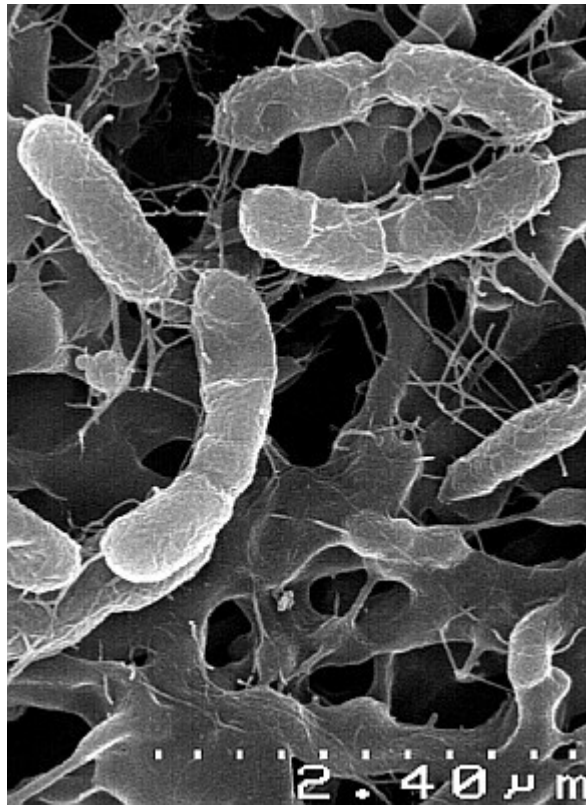
Onion cells taken with a cell phone closeup lens. (commons.wikimedia.org)



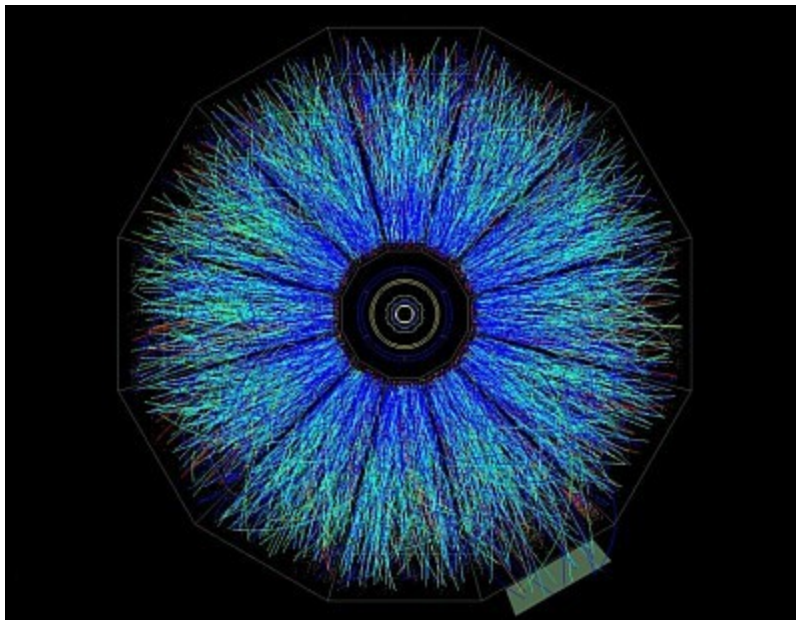
Dark-field microscopic photograph of diatoms. (commons.wikimedia.org)



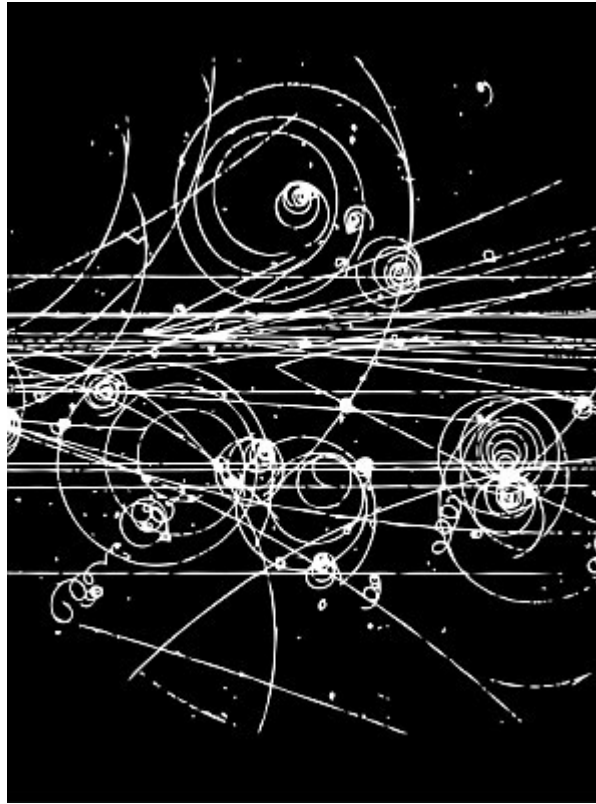
Electron microscope shot of plant leaf epidermis. (commons.wikimedia.org)



Electron microscope photo of bacteria. (commons.wikimedia.org)



Brookhaven Lab: image of paths of thousands of subatomic particles created in a collision event. (commons.wikimedia.org)



Collisions of subatomic particles recorded in this bubble chamber photo.
(universe-cluster.de)

BLOGS FOR MY WEBSITE EXHIBITS



Introduction To My Painting With Light Photographs (2003)

Introductory text from my website: www.rickdoble.net/paintingwithlight

PLEASE NOTE: I am *NOT* against photography as we know it. However, I am for a broader definition and wider experimentation that includes not only traditional photography but also images that use the "light-writing" ability of photography to its maximum, the ability to create less sharp images that are more expressive, to "paint with light."

The digital camera has the power to transform photography from a realistic medium into a thoroughly contemporary one which can explore many of the spatial realms, concepts and passions of modern and contemporary painting.

In the later part of the 1800s the realism of photography freed painting to explore light and color. The Impressionists and those who followed used that freedom to create exciting and radically new imagery.

*One thing which has never been really worked out is how
photography has completely altered figurative painting.*

Francis Bacon, Interview, 1963

Around the year 1900, Einstein, Freud and the advent of pervasive technology and machinery signaled a distinct change in human civilization. These radical ideas and technology were a clear break from the past which had been a world composed of farming, horses and disease. This new man-made world required a new vision - the work of modern artists. So in the early part of the 20th century, painters began to explore space, time and expression with the work of the Cubists, Futurists, Abstractionists and Expressionists.

I believe that, with the digital camera, photography has now come full circle. It can break away from the totally realistic image and explore these same themes of modern painting in new and purely photographic ways. The principle method for achieving this will be via long timed exposures.

According to Einstein the basic structure of our world is space-time and things exist in a space-time continuum, a world of four dimensions: height, width, depth plus time.

*The fourth dimension was a highly popular concept in the early 20th
century and figured in the theoretical underpinnings of nearly every
Modern art movement.*

Bruce Clarke, from a course at Texas Tech University, Spring 1996

Photography is particularly capable of exploring this dimension. A photographic exposure results from a combination of space and time since an exposure is caused

by an amount of light through the lens for a duration of time via the shutter. Photographs taken with a slow shutter speed can record a subject in motion, the existence of a subject over a duration of time.

But even more than the ideas of Einstein, motion is the essence of life. To be alive is to move. In fact death is often determined by a lack of movement such as no breathing and no pulse. Yet it is sharp, clear, frozen images -- still photographs -- that we cling to in our family albums and on posters. While this "frozen moment in time" is marvelous, it is, in a sense, unrealistic since life is always moving on.

*Exactness is not the truth.
L'exactitude n'est pas la vérité.
Henri Matisse, 1947*

So the photography of motion is more than just another technique, style, or method, it is a way to record on light sensitive material the stuff of life. What more could an artist ask of a medium?

There are many variables. The possibilities are simple and complex, endless and mind boggling. For example, a shorter time will create sharper more recognizable images, longer times will lead to more blurred or abstract images. There is a point where the subject can completely disappear or not be recognizable. This imagery is relative to the rapidity of movement, both subject and camera, and its regularity.

For example, if I take photographs of dancers, they may stand more or less in one place but their bodies can move somewhat randomly. In this case I anchor the camera to one spot and shoot with a shutter speed that slightly blurs their movements. This is quite different from taking a photo of a speeding go-kart. The go-kart follows a predictable path at a fairly even speed. In this case I handhold the camera and pan with the vehicle making the go-kart relatively sharp compared to the blurred background.

Figures were never for me a compact mass but like a transparent construction.

Alberto Giacometti, Letter to Pierre Matisse, 1947

Artists & Movements Inspiring Today's Photography (2003)

The new expressive photography that I am proposing in this online exhibit can learn and gain inspiration from modern art in general and the following modern artistic movements and modern artists in particular.

ART MOVEMENTS

Abstract Art:

Pure abstract art has more to do with design, color and sense of space rather than emotion or expression. However, in a sense, abstract art never existed in this pure form. Abstract imagery has been around for some time in photography, such as the work of Aaron Siskind. However, the new imagery I am proposing with slow shutter speeds and blur makes for some particularly powerful abstract images. Since there were so many branches of abstract painting, I urge my readers to view their work on the web. Google's image search will bring up a substantial number of their works for the following artists: Delaunay, Kandinsky, Malevich and Mondrian.

Abstract Expressionism:

Founded in New York in the forties and fifties the work of Pollock, de Kooning, Rothko, Kline, Frankenthaler, and Hofmann -- just to name a few -- combined the inner feelings of the artist with an abstract image. Again photography has the ability to add the feeling of the artist to an abstract picture. I have been told, for example, that I was "action painting with a camera," an idea that I agree with.

Cubism:

I believe that both Cubism and Italian Futurism were deeply affected by Einstein's Special Theory of Relativity which was published in 1905. This theory linked time and space together as a basic foundation of physics and the world in which we live. Cubism broke away from the three dimensional space that had controlled art since the Renaissance. While the imagery and colors were quite limited in Cubism, the space created was a new. For example, with a Cubist portrait it was as though the viewer could see a person from the back, front and side all at the same time or perhaps see that person from different times all at one time.

*Relativity teaches us the connection between the different
descriptions of one and the same reality.*

Albert Einstein

Expressionism:

While figurative, the Expressionists wanted to express their feelings about a scene rather than depict the scene accurately. This led to distortions, unusual perspectives and primitive imagery. Digital photography can now achieve these Expressionist effects. Digital photography can render subjects both realistically and also somewhat abstracted or smeared or vibrating. It can also create unusual perspectives.

Italian Futurism:

I believe that both Cubism and Italian Futurism were deeply affected by Einstein's Special Theory of Relativity. The goal of the Futurists was to include motion, and therefore time, in a painted image -- much like the Cubist wanted to include multidimensions in a portrait.

*Put your hand on a hot stove for a minute, and it seems like an hour.
Sit with a pretty girl for an hour, and it seems like a minute. THAT'S
relativity.*

Albert Einstein

Impressionism:

Light and color were suddenly freed from their realistic chains by the Impressionists. This came about because photography could render a realistic image quite easily, so painting had to branch out on its own. Instead of a real image, the artist created an impression. After years of living with these images, many people found that these impressions seemed more "real" than the realistic imagery they replaced. In any case, the Impressionists changed art forever. Their movement was the beginning of Western modern art.

Surrealism:

Although originally conceived as a vehicle for poetry, it was visual imagery that gave Surrealism its true voice. Andre Breton, the principle founder, fashioned a number ideas that were to characterize Surrealism such as "pure psychic automatism," which included an acceptance of chance and accident and a "mental vantage-point (point de l'esprit) from which life and death, the real and the imaginary, past and future, communicable and incommunicable, high and low, will no longer be perceived as contradictions." (Andre Breton) His ideas led in several directions such as the almost trance like state that Pollock used to start his paintings and the dream imagery of Dali or Magritte.

The new photography I am proposing can make use of both ideas: 1) photography can mix a realistic image with a less sharp one and combine this with an unusual angle to

create dream like imagery and 2) the photographer can relinquish some control and accept chance and accident to be central at times in the creation of his/her work.

ARTISTS

Bacon, Francis:

His self-portraits have a power and honesty that is hard to match. Showing himself in a very unflattering light, his smeared images are carefully done. His expressionist and blurred self-portraits are similar to what I was able to accomplish without realizing that he had done such self-portraits.

Calder, Alexander:

While others tried to depict motion, Calder created things that moved. From his circus to his mobiles, his art described space and time in a new way. If you look at a Calder mobile for a while, it appears to carve out the space in its path and that empty space -- that it can enter and leave -- becomes part of the art work.

de Stael, Nicolas:

de Stael's quest was to find that point in space and artistic vision that encompassed the real and the abstract at the same time. Since photography starts out by dealing with the real world, it can then abstract a real image with a slower shutter speed, for example.

Gorky, Arshile:

Gorky is considered both a Surrealist and an Abstract Expressionist. I often think of Gorky's paintings when I am composing. His figures merge and blend into each other to form more of a fabric than a figure-ground relationship.

Kandinsky, Wassily:

He was the father of Abstract art and also a major Expressionist. The depth and range of his body of work is hard to classify because it kept growing and changing. It includes a number of distinct periods that produced quite different work and visions. Obsessed with the "spiritual in art" he approached the visual image in a number of ways to tell his basic message - that art was primarily concerned with the spiritual aspect of humanity.

Muybridge, Eadweard:

Muybridge is probably the most important little known modern artist of the last 150 years. His work in fast motion photography led to major developments in still photography and painting plus the invention of motion pictures. In addition his images of people and animals in motion forever changed the way these figures were viewed. His work led to the invention of the cinema and directly affected Marcel Duchamp and

others at the turn of the century. I studied his work carefully for over ten years and made my own gallery of his work in a revised digital format in the early 1990s with a 64k computer. You can look at my exhibit online.

Pollock, Jackson:

Pollock's overall compositions -- sense of space and depth as well as his incredible understanding of line and the directional force of line -- are appropriate for some of the new photographic images that I am proposing. Like Kandinsky, his work was concerned with a spiritual resonance. This spirituality often gets overlooked in favor of his radical technique of splattering paint. Yet this method was really just a means to an end; many of his paintings, both early and late, were not painted in this style.

Quotations From Modern Artists (2003)

Most writing on art is by people who are not artists; thus all the misconceptions.

Delacroix, quoted in *Der Blaue Reiter Almanach*,
Edited by Wassily Kandinsky and Franz Marc, 1914

ART AND TECHNIQUE

The poet becomes a seer, by a long, immense, and conscious disorder of all the senses.

Arthur Rimbaud

A picture used to be a sum of additions. In my case a picture is a sum of destructions. I do a picture -- then I destroy it. In the end, though, nothing is lost.

Picasso, *Conversation*, published in *Cahiers d'Art*, Paris, X, 1935

When I am in my painting, I'm not aware of what I'm doing. It is only after a sort of get acquainted period that I see what I have been about. I have no fears about making changes, destroying the image, etc. because the painting has a life of its own.

Jackson Pollock, *Statement*, 1947

At a certain moment the canvas began to appear to one American painter after another as an arena in which to act -- rather than as a space in which to reproduce, re-design, analyze, or express an object, actual or imagined. What was to go on the canvas was not a picture but an event.

Harold Rosenberg, *The American Action Painter*, 1952

Art lies in the continual struggle to come near to the sensory side of objects.

Francis Bacon, *Statements*, 1952-1955

You know in my case all painting...is an accident....Perhaps one could say it's not an accident, because it becomes a selective process what part of the accident one chooses to preserve....

Francis Bacon, *Interview*, 1963

THE ARTIST AND THE MODERN WORLD

The present isolation of the rare, genuine artist is absolutely unavoidable for the moment.

Franz Marc, *Der Blaue Reiter Almanach*
Edited by Wassily Kandinsky and Franz Marc, 1914

The solitary visionaries are despised or regarded as abnormal and eccentric.

Wassily Kandinsky, *Concerning the Spiritual in Art*, 1911

The unfriendliness of society to his activity is difficult for the artist to accept. Yet this very hostility can act as a lever for true liberation. Freed from a false sense of security and community, the artist can abandon his plastic bank-book, just as he has abandoned other forms of security. Both the sense of community and of security depend on the familiar. Free of them, transcendental experiences become possible.

Mark Rothko, *The Romantics Were Prompted*, 1947

MODERN MATERIALISM

I want to be far from the European struggle for money....Free at last, without money trouble, I'll be able to love, to sing and to die.

Paul Gauguin, from a letter to his wife, 1890

Our minds, which are even now only just awakening after years of materialism, are infected with the despair of unbelief, of lack of purpose and ideal. The nightmare of materialism, which has turned the life of the universe into an evil, useless game, is not yet past.

Wassily Kandinsky, *Concerning the Spiritual in Art*, 1911

ART AND THE SPIRIT

The all-important spark of inner [ED.: spiritual] life is at present only a spark...

The spirit like the body, can be strengthened and developed by frequent exercise.

Wassily Kandinsky, *Concerning the Spiritual in Art*, 1911

There are two kinds of reality: physical reality, apprehended by the senses, and spiritual reality created emotionally and intellectually by the conscious or subconscious powers of the mind.

Hans Hofmann, excerpts from his teaching

What really counts is to strip the soul naked. Painting or poetry is made as we make love; a total embrace, prudence thrown to the wind, nothing held back...

Joan Miro, from an interview with Georges Duthuit, 1936

These drawings seem to me to sum up observations that I have been making for many years on the characteristics of a drawing, characteristics that do not depend on the exact copying of natural forms, nor on the patient assembling of exact details, but on the profound feeling of the artist before the objects which he has chosen, on which his attention is focused, and the spirit of which he has penetrated.

Henri Matisse, *Exactness is Not Truth*, 1947

ART AND VISION

We are...primitives of a new sensitiveness...

Our art will probably be accused of tormented and decadent cerebralism. But we shall merely answer that we are, on the contrary, the primitives of a new sensitiveness, multiplied hundredfold, and that our art is intoxicated with spontaneity and power.

The Futurist Manifestos, Futurist Painting: Technical Manifesto, April 11, 1910

Picasso invented a free and mobile perspective and form, used for too many centuries as the inanimate support of color, finally recovers its right to life and to instability.

Jean Metzinger, in an article on *Cubism* in *Pan*, 1910

Art does not reproduce the visible; rather it makes visible.

Paul Klee, *Creative Credo*, 1920

First, [the artist] does not attach such intense importance to natural form as do so many realist critics, because for him these final forms are not the real stuff of the process of natural creation. For he places more value on the powers which do the forming than on the final forms themselves...

...chosen are those artists who penetrate to the region of that secret place where primeval power nurtures all evolution. There, where the power-house of all time and space -- call it brain or heart of creation -- activates each function; who is the artist who would not dwell there?

Paul Klee, *On Modern Art*, 1924

ART AND THE FOURTH DIMENSION

The Cubist ideas in painting necessitated more than the three dimensions, since these show only the visible aspects of a body at a given moment. Cubist painting...needed a dimension greater than the Third to express a synthesis of views and feelings toward the object. This is possible only in a 'poetic' dimension in which all the traditional dimensions are superseded.

Jean Metzinger, in an article in *Pan*, 1910

Today scientists no longer limit themselves to the three dimensions of Euclid. The painters have been led quite naturally, one might say by intuition, to preoccupy themselves with the new possibilities of spatial measurement which, in the language of modern studios, are designated by the term: the fourth dimension.

Regarded from the plastic point of view, the fourth dimension appears to spring from the three known dimensions: it represents the immensity of space eternalizing itself in all directions at any given moment. It is space itself, the dimension of the infinite.

Guillaume Apollinaire, from the *Cubist Painters*, 1913

All true productivity realizes itself simultaneously upon an artistic and scientific basis. With the acceptance of the Theory of Relativity by Einstein, the fourth dimension has come into the realm of natural science. The first and second dimension include the world of appearance, the third holds reality within it, the fourth dimension is the realm of the spirit and imagination, of feeling and sensibility.

Hans Hofmann, 1930

To transform height, width, and depth into two dimensions is for me an experience full of magic in which I glimpse for a moment that fourth dimension which my whole being is seeking.

Max Beckmann

Introduction To My Animation Website (1999)

Introductory text from my website: www.rickdoble.net/animate

The animations described here are very short (no more than 4 seconds) looping animations I created with my early Casio camera from a series of still photos I took in sequence. I created these from 1998-1999. At this early period of the Internet they took many minutes to download -- so they were state-of-the-art.

Without realizing it, I was working toward my 'painting with light' long exposure photographs that I would begin when I got a new camera in 2000.

My Animations From Digital Photographs

My small animations are NOT "mini-movies" but an art form that is quite different. Because they loop and repeat, because the timing is often different from frame to frame, and because pictures may have been taken at different intervals -- not regular short intervals like film or video -- they are more like music or a pulsing living being.

Animate means "having life" according to the dictionary. Unlike still photography which deals in two dimensions (x and y axis), these photographic animations deal in four dimensions (x, y, z axis plus time). Little animations may achieve what the Cubist and Italian Futurist painters at the beginning of the century were trying to achieve, that is the ability to see the whole object in space and time in one work of art. Four dimensions is not just a concept but a reality of physics. For example Einstein adapted the age-old Pythagorean formula for the hypotenuse of a triangle to accommodate time as another component.

The Self Portraits

Painters have been creating self-portraits for years. Some of the most famous paintings ever created were self-portraits such as those of Rembrandt and van Gogh. However, photography until now has been unable to accomplish this. The photographer had to be behind the lens to preview the photographic image. In short he or she could not be behind the lens and in front of the lens at the same time. With the Casio QV-100 and Casio QV-770 cameras that I use, the lens can be rotated in just about any direction up to 270 degrees. I can point the lens at my face or body and frame the picture at the same time.

And BTW these self-portraits are not an indication that I am an ego-maniac. I have worked with friends and lovers but found that they often did not have the time or did not like the unflattering way I would take a portrait. So after a number of years I decided that I am the most willing model who will do what he is told, will work for nothing and who is always available even at 4 in the morning. And I never have to worry about whether I can find me.

In all cases I am limited by the length of my arms. This determines the furthest distance I can move the camera away from my body and also the furthest that I can accurately frame and judge the picture in the view finder.

In addition I want to add that these pictures were NOT manipulated in a graphics program. I used the quirks of the light sensitive material and also the way that digital imagery is stored to achieve most of the unusual effects. All of the enhancements were achieved in a basic "darkroom" processing program.

EARLY BLOGS: ART AND ITS RELATION TO CONTEMPORARY CULTURE



Post Style (2002)

This essay was on my website and then published in *Life Imitating Art Magazine*, 2002.

The composer John Adams has said we do not live in a post modern era. It is instead post style.

What he meant was that an artist can draw on a variety of styles and stir these into the pot together. A contemporary painter can use pop or comic book figures, photographs from a family past and paintings from Leonardo da Vinci all in one work. Paul McCartney can become a classical composer and Billy Joel can play Schumann. Multimedia artists can mix just about anything for creative effect.

I had the benefit of a father who was the age of most people's grandfathers. He could remember when things were different. He pointed out that society used to be quite segregated. Upper crust people simply did not mix with those below them. The word "society" itself meant an elite group that was protective about who became a member of society and who did not.

Furthermore pop art and classical art were worlds apart: one was in the dance halls, the other in the concert halls. A lot of effort was devoted to maintaining these distinctions.

But even in the early part of the century the urge to merge had gained steam. In the twenties one could have heard Stravinsky's *The Rite of Spring* composed in 1913 in a concert hall which was a blending of classical and primitive traditions. Or Gershwin's 1924 *Rhapsody in Blue* which was a blending of jazz, classical and the French impressionist music of Debussy and Ravel. Earlier in the century Picasso had already shattered painting with *Les Femmes d'Alger* and Duchamp had declared that a bicycle wheel could be seen as art. Movies were making the limited world of theater available to a large audience and radio was bringing all kinds of music to everyone.

Today we live in an era where a myriad of boundaries have been breached. The various classes can often mix with minimal problems, the divisions between men and women are crumbling, the gap between what used to be called the "races" -- meaning black, white, Hispanic and other ethnic groups -- and even between straight and gay or good girls and bad girls are fading.

I am not so naive that I think these divisions have disappeared. The country club mentality and the debutante way of thinking are alive and well. To walk into these worlds one must still have the "best" credentials. Nevertheless the gap between those on the right side and the wrong side of the tracks is not as great as it used to be.

Today in the arts as well, many barriers have fallen. Painting and sculpture often seem inseparable. Jazz is now played on classical music stations. High fashion is often inspired by peasant dress. It is not unusual to go to a music festival -- as I did recently here in North Carolina -- and listen to: 50's black music, modern heavy metal, Cajun, jazz, country and rock and roll.

The contemporary artist has the luxury of using all of these marvelous art forms and combining them in striking ways. There are no limits. Few people now insist that "this simply is not done." It is post style.

Why Has This Happened So Quickly?

Modern society has overturned assumptions and barriers that have persisted for thousands of years. There are a variety of reasons why in about 200 years western cultures with sharp divisions have become what we see today.

The inclination is to think of this as a kind of progress, in particular the progress of democratic societies in which more and more people are included in the benefits and protections a government offers. Certainly this is true but it is only one of a number of reasons and not the most important.

Although a book could easily be written on this subject, I would suggest the following reasons: The three major wars in this century, meaning WWI, WWII, and the Cold War. The empowerment of women. The rise of mass media and mass marketing. And the improvement in health care that has increased life expectancy by 50%.

The mass armies that were raised for WWI and WWII meant that people of all stations in life were thrown together. Even ethnic groups served although they were in segregated regiments such as the black Tuskegee Airmen and Japanese Nisei soldiers in the US Army. Women worked as men at demanding jobs building planes and tanks. And everyone one was a target of the enemy: soldiers, civilians, old men, women and children. With the cold war, everyone could be killed by Intercontinental Ballistic Missiles (ICBMs). All of these forces tended to downplay differences and emphasize what people had in common.

Dwight Eisenhower was a prime example of how war could elevate a man from a humble background in Kansas to supreme commander of Allied forces in Europe and then the most powerful man in the world as president.

Mass media and mass marketing means that when I flip though the hundred or so channels on my TV, I go in seconds from high brow culture to pop culture from symphonies to country music. When I turn on the radio, I slide between dozens of different art forms and types of discussions that live side by side on the radio band.

And mass marketing means that rich or poor we tend to use the same everyday products, the same breakfast cereals and the same toothpastes.

The empowerment of women has meant that women can choose the life they want. They can get an education, hold well paying jobs, be single, even have children as a single mother or choose not to have children as a wife. And they can divorce their husbands. The rigid roles and few choices for women are now gone.

Life expectancy is probably the least understood. In a society in which people die young, it is the rules of the culture that endure and continue. In a society in which children do not die at an early age and people live into their seventies, individuals are more secure and have more power and more sustained influence.

PLEASE NOTE: Naturally I am talking about the society that I know, that of the United States and also western Europe. I am less knowledgeable about other cultures and would welcome comments.

Gaining Inspiration From Artists Of The Past (2003)

I have quite a few close friends whom I have never met and whom I will never meet. They are dead artists who had the courage to put their private and intimate visions out into the public world and whose work I can study, learn from, and become attached to.

I consider Beethoven, T.S. Eliot, Paul Klee and Jackson Pollock to be important to me personally. Whether they and I would have liked each other is not important. I greatly admire what they created for all of us to share and their points of view have become part of my point of view.

I don't think that this is strange. I believe that just about everyone has a favorite actor, scene from a movie, singer, song or passage from a novel. And I believe that each of us thinks of these and sometimes looks to these for guidance as we go through life and make decisions. How many people have decided to continue a relationship or break up based on a song?

As artists we often complete another's work, answer another's questions, extend another's ideas. When I create new work, I often find myself thinking about an artist and not really understanding why.

One painter, in particular, continues to haunt me, because what he accomplished was so monumental and yet so unfinished. I am talking about the painter Nicolas de Stael whose landscapes and other work seemed a perfect blending of abstract and figurative art. He had set such a hard task for himself that he was unable to survive and killed himself at a young age.

I sometimes find myself trying to continue his work via photography -- to make the photograph a bit painterly and abstract so that it dissolves the figure and world in front of the lens. In other words to come at it from a different direction but with a similar result.

I am fortunately not as driven or as impatient as de Stael so I don't think that this quest will drive me mad. But at times I come so close to finding that point of realism/abstraction, I believe I see what he saw and am frustrated that I can only make it work in a narrow way.

I have come closest, I think, with my "dancers in motion" series in which the people dancing make the colors swirl just like paint, but the reality of the dance floor and the stances of the people themselves, makes the viewer realize that this is not only an abstraction, but a photograph of real people.

At times I feel that I am involved in a conversation with de Stael in which we discuss the limits of abstraction, the boundaries that once crossed mean that the figure is lost.

Even though de Stael's work is very abstract, it has a strong sense of realism. My favorite, *Figures at Seaside*, feels like I am looking out at the harbor and seeing the waves, yet I am constantly brought back to the large and simple shapes and blocks of paint that he has put squarely on the surface of the canvas.

And so our conversation, our dialogue will continue and I thank him for giving me another dimension to my photography, another path for me to explore.

To view paintings by de Stael go to Google's image search and search for Nicolas de Stael -- the search should turn up a variety of his paintings.

Truth-To-Materials In Photography (2003)

*I saw the angel in the marble
And carved until I set him free*
Michelangelo

The sculptor, Brancusi, believed that his art should contain a "truth to materials" in which an artist would coax an image from within the material rather than forcing an image onto the materials.

*The sculptor was to reveal in his very means of working the material
the quality and personality of that material — wood would show its
grain, metal its tensile strength, stone its texture etc.*
www.chronogram.com

Also considered a dedication to directness, the modern "truth to materials" idea was to change art from being a window through which one saw a world created by the artist or an illusion, but instead a concern for the stuff that one was working with, so that paint was clearly paint and stone was obviously stone.

The modern trend is thought to be inspired in part by the work of Michelangelo who carefully quarried and selected his marble with specific figures in mind. His work made the viewer intensely aware of the beauty of the stone as well as the figures themselves.

But we digress. This discussion is about photography.

And the question is simply this, to paraphrase the old soap opera line: Can an art form, which has been committed to creating high resolution images of the real world, find happiness as a contemporary art form that includes things that photography has been avoiding up to now, such as blurriness, overexposure, underexposure, camera movement, subject movement, graininess and long exposures in which the unexpected happens?

The photography we have seen for the last 160 years has been created within a narrow spectrum of the range of imagery that a camera could create. The sharp picture capability of photography is both so powerful and useful that it has been easy to ignore the other possibilities. In general photographers have concentrated on perfectly exposed, fast shutter, well focused pictures of people and scenes in the real world. There certainly are exceptions such as the work of Man Ray, but in general a convincing illusion of the real world has been photography's goal.

How would such a new photographic art form look and how could it be created? The fact that I can ask such a question means that there is a lot of experimenting that needs to be done and lot of techniques that need to be explored.

In a sense we photographers will have to learn how to be "bad" photographers, to deliberately go after blurred, unsharp, oddly exposed images -- in other words to do all those things we have learned to avoid.

These images are, at best, very difficult with traditional film. The immediate feedback of the digital camera, however, means that we can try a lot of different things and quickly see the results. Plus the material is inexpensive so we do not have to spend a fortune. Digital cameras may give us the power to set photography loose.

For myself, I have only started. For example, in the winter of 2002 I embarked on a series of images taken through the windshield of my van as I ambled down the road. Around sunset, I set the exposure to 4 or 8 seconds, the maximum on my digital camera, and I drove until after dark. The camera, instead of recording a street scene, recorded the motion of the van along the street. The natural vanishing point of the highway held the composition together.

I did this with a tripod or hand held while cruising down well lit streets and dark back alleys, highways with bright neon signs, under traffic lights, in the rain, in the fog and while I made turns and approached the brake lights of stopped cars.

The photograph can be used to record a passage though time, a movement through a space, even an emotion characterized by the movement of the camera. For example, one could walk down a path with the shutter open, walk up to a full portrait of a friend or even dance to music while taking a timed exposure.

I would like to set the caged animal loose and really see what can be done.

Let the games begin!

Why Create Art? (1998)

Several young and new artists have written me asking for my advice about becoming an artist. Here is my response.

Do not become an artist if you want to be rich and famous. You are bound to be disappointed, and you will be creating art for the wrong reasons.

Do not become an artist if you want to be rich and famous.

I create art for very simple reasons. It is the one consistent thing in my life that I have been able to rely on. Through my art I have grown and developed and I have a record of the path that I have taken to get there. It is mine and mine alone. It is free from the pressures and interference of others. Art has been the center and core of who I am.

My particular view of art allows me to try many different techniques and art forms. To an outsider it looks like I am just dabbling, to me it feels like growth.

I am both a writer and a visual artist. I also consider the way that I use the computer and the way I design Internet pages to be part of my art. I write in many different forms: haikus, lyric poetry, long and short essays, short stories, drama, children's stories. My visual work now includes computer transformed historic photography, digital photography and gif animation. In the past I have made mobiles, paintings, collages, multi-media shows and just about every kind of traditional photography.

There is an assumption about art in our society that goes like this: if you can't do it really well, don't do it. I recommend that you pay no attention to this.

There is an assumption about art in our society that goes like this: if you can't do it really well, don't do it. I recommend that you pay no attention to this. If the art you create is primarily for you, why worry? Eventually you may want to show it to others but don't be in a hurry. All art will get better and surer as you work on it. Don't whip a baby when it is crawling because it is not walking.

You need to develop a strong inner feeling about what you are after. This does not need to be put into words. Even literary feelings do not need to be put into words. Kandinsky said an artist should create from an "inner need." Follow that feeling. Recognize it when you see it. Have faith in your own wordless intuitions. Realize that when you turn a corner on a dirty city street and see a shaft of sunlight illuminating a scrap of crumpled paper and you find yourself catching your breath, that you have seen something important, although to someone else it is nothing.

The key to my continuous creation is my notebooks.

The key to my continuous creation is my notebooks. Since I was 20 years old, I have carried a notebook and written down thoughts as they occurred to me. They can be phrases or a first line of a poem or designs or diagrams or pictures or places I want to photograph or painters whose work I want to look at or simply words I overheard in an old black and white movie or from a conversation of workmen at McDonalds.

My notebooks are very messy and personal. They contain various sections for different kinds of ideas and notes. I do not show them to anyone. They are the raw stuff out of which my art is made. When a notebook is filled, I put a date on the front, usually date started - date ended, and then store it away.

Have faith in your own wordless intuitions.

When you keep a notebook and start writing down ideas, you will find that more and more ideas come to you. It is as though you have slowly turned on a faucet and your imagination begins to grow because it has a place to take root.

Studies have showed that people who get things done write them down. Something happens when you put pen to paper. A fleeting thought is no longer fleeting; it has taken a form that is now solidified. You are not obligated to do anything with it or even to remember it. But because you wrote it down, it will come to affect your art.

Studies have shown that people who get things done write their ideas down.

Later when you go back to your notebooks, these scribbled notes may spark new ideas. You will find yourself combining an old idea with a new one. This is exactly how art evolves.

You are under no obligation to show your art to anyone. When and if you do show it, do it slowly. Show it at first to a few sympathetic friends and knowledgeable acquaintances. If you have an exhibit, remember to have a very thick skin. Some people will like what you do. They are your audience. Listen and pay attention to those who seem to understand. Often a sympathetic person will see things in your work that you had not thought of. No artist should understand his or her own work completely. Learn from these people.

Some people will not like what you do and will belittle it. These people are not to be hated, but they are not your audience. If you changed your art to suit them, they would still not like it. Many will be envious of your accomplishments.

Once you make your art public, remember to please yourself and not your critics, because trying to please a critic will be a losing game.

Once you make your art public, remember to please yourself and not your critics, because trying to please a critic will be a losing game. If your art is based on past techniques they may say you are too traditional. If it is innovative, they may say it is

not really art. If you make it accessible and easy to understand, they may say it is not deep enough. If your art refers to another artist's work, they may say it is too obscure. At the same time you will hear critics state that what they would really like to see is an innovative art that understands the tradition of art, that is accessible to all viewers but is not afraid to have a deeper layer of meaning.

Always remember that the art you are creating is for you and you alone. The more you do it the better you will get. Ignore people who want you to do it perfectly. Art is never perfect and new art is a groping process. You will be your own harshest critic. You will know when you have created a really good work and when you have created something ordinary.

Always remember that the art you are creating is for you and you alone.

Look at the work of others in your art form and other art forms as well. Look at their techniques, absorb the feeling of a piece. Look at work from artists of the past. I often find my work is a dialogue with other artists. You may find that some dead artists become like friends whom you can almost talk to. When you find an artist you like, study that person's work. With painting, for example, study compositions until you can close your eyes and see the picture clearly in your mind.

When your intuitions become sharper, you may find that you feel more comfortable with yourself and your life. You will gain a sense of where you are on your life's path, which you probably cannot put into words.

When your intuitions become sharper, you may find that you feel more comfortable with yourself and your life.

Since my thirties I intuitively understood that my art would not fully mature until I was much older. I was trying to bring together too many elements for it to happen sooner. So I learned to be patient and let my work progress at its own pace. Now that I am in my mid-50s, it is clear. All the various pieces of my art are coming together on the computer and on the Internet. Art forms that looked different and scattered in the 1970s -- such as animation, slide shows, essays -- now work in harmony on the World Wide Web.

Art forms that looked very different and scattered in the 1970s now work in harmony on the World Wide Web.

As you develop you may find some guiding principles that you like. I like to keep things simple. In my 20s I read this thought from a painter: Jackson Pollack said he wanted to create an art that was "simple and direct." I have used this thought to guide my work through all its forms.

The Map Is Not The Territory (2009)

How concepts can blind us to reality

At the age of fifteen, I knew that I loved music but I could not master reading the notes from sheet music. I asked my piano teacher to play a piece for me, so that I could hear it. He refused. In fact he became quite angry. He banged his hand against the paper and said, "This is the music -- play what you see here."

At the age of fifteen I knew that something was terribly wrong -- but I was not sure what. Here I was questioning an accomplished pianist who had taught hundreds of young people how to play. Who was I to wonder about his methods?

Yet the next year, when I had to decide which courses to take, I stopped taking piano. And I never took it again. At the time I did not understand the reasons -- just that it was not working for me.

But now -- almost fifty years later -- I do understand. And what I was trying to get my teacher to do required he cross a barrier that seemed impossible to him. Quite simply music is **not** a written score, music is what you hear. And I somehow knew that hearing the music would make much more sense to me -- give me a feel for the notes combined with the rhythm -- rather than trying to read it slowly and painstakingly as I struggled to finger each key.

I knew intuitively that I would learn better if I could hear the music as sound rather than try to piece it together from a printed page. And this understanding had other ramifications: I realized I could learn a foreign language better when I heard it and tried to speak it rather than working from books. And that I could learn to write better English simply by working to write as clearly as possible -- rather than trying to remember the rules of grammar as had been drilled into me by so many English teachers.

Polish-American scientist and philosopher Alfred Korzybski stated, "The map is not the territory." By this he meant that we often confuse absolute reality or fundamental reality with a human abstraction of reality. And while these abstractions and concepts are very useful, they need to be kept in their proper place and proper perspective.

I am often astonished how preconceptions can blind us to things that are clearly in front of us. Or how scientists can discard well crafted research because they do not agree with the end result.

Let's take a classic example: Arthur C. Clarke wrote a detailed proposal for geostationary satellite communications in the magazine *Wireless World* in 1945. His idea was backed by solid calculations. At a specific distance from the Earth, satellites

would orbit at the same speed that the Earth turned -- making them stationary in relation to the Earth -- and thus could be used for communications. At the time his idea was ridiculed. Now 60 some years later, the precise orbit that Clarke predicted is crowded with satellites that are used for communications and without which the modern world could not function.

While it is the business of scientists to question new ideas and to rigorously test them before giving them a stamp of approval -- in this case the math and physics were very clear. Yet knowledgeable engineers dismissed the idea and saw it as a flawed concept.

Now I too -- at the age of sixty-five -- am engaged in another battle of this kind. I have explained how photographs can be created in an expressive manner by using slow shutter speeds. The methods I use are purely photographic and involve no computer manipulation other than standard darkroom techniques. Yet I find I am hitting a barrier. Critics want to say that what I have shot is not photography. What they mean is that these pictures are not clear sharp photos of people and objects -- which is true. But photography is by definition the action of light on light sensitive material. Thus what I am doing *is* photography. In fact this work builds on and continues an effort by a number of photographers over the last century, from Alvin Coburn to Man Ray to Wynn Bullock, to work with light in and of itself in photographs.

So yes, my critics, my blurry slow shutter speed painting-with-light photographs *are* photographs. And to understand this all you need to do is look.

A Modern Understanding Of Art (2002)

When I was 16 years old, I had listened to the complete cycle of the 7 symphonies of Sibelius. At this young age I had a small understanding of work that a had taken a man a lifetime to accomplish. It was mind boggling.

Now at age 57, I only just realized after watching the marvelous TV program *Howard Goodall's Big Bangs* that I was in the right place at the right time: the 1950s was when recording technology, at least for long classical pieces, came of age.

Even wealthy aristocrats rarely heard the same piece twice in a year when they went to live concerts in Paris or Vienna in the 1700s or 1800s. Here I was a poor student in 1960 who was able to buy inexpensive long playing recordings of a composer's work and listen to them over and over.

The technology is important. Recordings had been getting better since Edison's invention of recorded sound in the late 1800s. But the short duration made them more appropriate for popular songs or opera arias. Prior to the early 1950s there were some excellent classical recordings, but the state-of-the-art 78s were a chore to constantly switch after a few minutes -- plus having to change records broke up the continuity of the music. When I started listening to classical music in the 1950s good long playing recordings had finally become available followed closely by the invention of stereo.

For me Sibelius was just the beginning. He showed me that there was a door into the world of an entire artist's work. Next I tackled Beethoven whose body of music was much larger than that of Sibelius. Yet for just a few dollars I could buy a complete set of *Vox Boxes* of Beethoven's 32 piano sonatas.

I am seeing the same thing happen now with film. When I was growing up, you either saw a movie when it came out or you missed it. Sometimes in the big cities you could find a festival which repeated older work but it was rare and you still had to show up on time!

Now I simply rent a video, or even record a movie off cable. I can create a library of a certain actor. I can study the range of work of a particular director. I can play a favorite movie over and over and catch all the nuances I would have missed. How many times can you watch *The Godfather* or *North by Northwest*? I don't think there is a limit.

This also holds true for painting. I own inexpensive books that contain quality reprints of much of an artist's output. I am able to study the complete work of Monet or van Gogh or Pollock. Even more intriguing is that I can be familiar with an entire era or movement such as the Impressionists or Moderns. So in addition to knowing one artist's work, I can know a number and understand how different ones fit and relate.

Now, of course, none of this is perfect. Movies look much better on the big screen. A good live concert is a joy to experience. And to see a real van Gogh in front of you is something you will never forget.

Nevertheless, when I go to a live concert and hear a Sibelius symphony, I have the pleasure and the advantage of being very familiar with the work. And while there is nothing like seeing real paintings, how often do we get the opportunity to see a full retrospective?

I had always assumed that interested people in any period could do what I have done, and yet it is a gift of our time.

Those who want can now gain a perspective and have a in-depth understanding of the incredible work that has led to and created our modern age.

The Beautiful In Art (2002)

*"Beauty is truth, truth beauty," that is all
Ye know on earth, and all ye need to know.
John Keats, Ode on a Grecian Urn*

#1. The Experience Of Beauty

Oh Mr. Keats if it were only that simple. Beauty has so many aspects and some are quite dark and deadly.

Experiencing beauty is an odd and very human feeling. It is both quite personal -- in the eye of the beholder -- and a cultural or human standard that most people can agree on.

For example, according to the latest scientific research, certain aspects of men's perception of feminine beauty -- the ratio of the hips to the waist, the symmetry of her face -- will be agreed upon by most men across the world regardless of their culture.

And while family feelings are deeply personal, most parents would agree that seeing their children peaceful, healthy and asleep can be a moment of intense joy.

A sunset is beautiful because it is so striking, so colorful and it is one of the few times when we can glance at the sun's brilliance directly. At the moment of setting we are reminded of our place in the solar system and in the universe and also of the eternal struggle between light and dark and of the cycles of the day, the year, and life itself.

As we know from the study about women, beauty often deals with proportions, symmetry and relationships. In ancient Greek times the mathematician Pythagoras was so taken with this idea, he imagined that numbers had a mystical importance that held the key to a human understanding of the universe. Music to him was the bridge, because on the one hand it was purely mathematical -- the relationship between the notes -- and on the other hand touched our deepest feelings, longings and desires. He felt that there was a musical and mathematical harmony of the spheres in which all could be understood and that humans could respond to.

More than two thousand years later, Johannes Kepler took that idea of the harmony of the spheres and used it as a starting point to discover the precise paths that the planets followed around the sun and exact way that they moved. "Kepler assigned a musical interval representing the motion of each of the known planets around the sun, and he spelled these intervals out using musical notation." (From the Fleur Helsingor web page about Kepler: members.aol.com/MetPhys/68kepmusphere.html)

What Kepler found was truly simple, beautiful and harmonious. It was a key insight that led to the discoveries of Isaac Newton and to the inventions of the modern world in which we live. So perhaps Pythagoras was not far wrong.

#2. What Is Beauty

This is a long introduction to my principle idea. After much thought -- let's say forty years --, I believe that beauty, in part, has to do with a sense of order, an aesthetic order. As humans we are obsessed with finding patterns. This is as it should be, since these will give us both an understanding and a control that will help us survive as a race. A sense of aesthetic order may involve symmetry, proportions, harmony, dissonance, composition, rhythm, cycles, repetition, irony and even justice.

Beauty also often involves a sense of awe, a feeling that one is seeing something that speaks to our deepest feelings. It is hard to stand in front of one of Monet's large water lily paintings and not feel that, for example. Sections of Bach's *St. Matthew Passion* move grown men to tears.

And beauty often involves a sense of mystery. The feelings we have after viewing a painting or a play can touch aspects of the human condition that we may never understand. Mystery is the opposite of order, because, by definition, we cannot comprehend it. Yet mysteries are very much a part of life and to be connected to them in a meaningful way is an order in itself. Art can provide a doorway or a window. Art can frame a mystery so that we feel less isolated and less alone.

If a profound art is successful, we know that we have seen a bit of ultimate truth that is both satisfying and which we will never quite understand. Like hearing the Bach *Mass in B Minor*, we go away knowing that we have experienced a human creation that has answered some of our deepest questions and that for a time has provided food for our hungry souls.

One of the most powerful aspects of art is that many viewers come to an art form with an openness, a willingness to find beauty -- even a new kind of beauty or a new sense of it. But viewers may not understand at first or they may miss the profundity of the message. Cutting edge art can present a new order which may seem chaotic. The paintings of Jackson Pollock were viewed as merely paint splatters at first, paintings that anyone's kid could create. The harmonies of Chopin sounded dissonant and were hard to listen to initially.

For art to be accepted it must resonate with an audience, even though that audience can be quite limited. Some artists seem to get it right from the very beginning such as Beethoven and the Beatles who have always been popular. Others take a while to develop. The impressionists were not well received at the beginning. van Gogh could not sell his paintings when he was alive. And yet both of these are popular among a wide audience today.

Other examples are even more intriguing. The music of JS Bach was not generally listened to for one hundred years after his death and did not become really popular until about 200 years later. Yet he was always held in high regard by an important segment of the music audience, that is the composers. These artists knew his *Well-Tempered Clavier* intimately because Bach had written the definitive introduction to creating keyboard music in all the different keys with one tuning. And because of this his music stayed alive, although hidden, for a long time. Yet his art paid a heavy price for that 100 years of neglect. It appears that roughly half of his works have been lost.

#3. Toward A Contemporary Creation Of Beauty

What does all this mean for the contemporary artist of today? I think that one of the principle purposes of contemporary art should be to find new relationships and to bring these into human consciousness.

While stories and images of alienation are popular, I believe that the most important task of art now is to create a new sense of our place in our hi-tech world. Alienation is that peculiarly modern feeling of discomfort, that we do not really belong in this contemporary world that we have built. Creating a harmony that comes to terms with this modern anxiety would be a major accomplishment.

#4. My Personal Quest

What is my own particular quest for the beautiful? It involves a lot of seeming contradictions.

I want a visual art that feels ancient and yet modern, archetypal and contemporary, on the human scale and yet vast, quiet but deeply emotional, a balanced composition that is energetic, a transient image that feels permanent, simple yet complex, easy to grasp at first and yet revealing more layers and depth after continued viewings.

I also want to create an art that is spontaneous and candid. As a result almost all of my photographs are not staged in a studio but grabbed from real life.

After much experimenting with abstract compositions and forms, then studying the figure sequences of photographer Eadweard Muybridge, I realized that I could achieve this in part with compositions based on the human body. No one was more surprised than I when the human figure became a major theme in my work. I had always leaned toward more abstract compositions. The human figure gave me the elements I needed: it is both ancient and modern; the human shape is fleeting and transient and yet even modern postures can have the feel of ancient Greek statues.

#5. The Dark Side Of Beauty

Beauty, however, has a very dark side to it. This really should not be surprising since most powerful human emotions are double-edged swords - the same knife that the surgeon uses to save a patient could be used to kill another.

In particular, Hitler employed his sense of art and beauty -- remember he was an artist -- to enthrall the German people. The Nazi swastika was used as a symbol of how German power would dominate; the torch light pageants were designed to recall the Nordic myths and German heritage; the massive gatherings were created to make people believe they were part of a magnificent larger whole and also to realize that they played only one small part, and that at the top of the structure, the highest point of the pageant, stood their leader, the Fuhrer, whom they would follow. In short Hitler's carefully crafted sense of beauty was used to enslave an entire people to do his bidding.

And to make the question of beauty even more complicated. How should we regard the music of Richard Wagner. Wagner's music was deliberately created to be very Germanic. It was revered by the Nazi's and used to inspire their regime. Can it be seen as beautiful in and of itself irrespective of how it was used?

RETHINKING THE MODERN SENSIBILITY

An Early Series Of Essays

Toward A New Mythology And A Future-Primitive Art (2003)

Modern, contemporary, digital and computer art of the future

The old gods are dead or dying and people everywhere are searching, asking: What is the new mythology to be, the mythology of this unified earth as of one harmonious being.

Joseph Campbell, The Inner Reaches of Outer Space: Metaphor as Myth and as Religion

Now that we have begun the 21st Century and have achieved an unprecedented understanding of the inner workings of the Universe both at the macro and micro levels as well as the inner workings of life itself with DNA, it is time to propose ideas for a new mythology.

Why do I call it a mythology? After all doesn't myth mean "not true" in the modern world. As you will read, in every era that are things that are not known and in all times there are things that can never be known at least in a scientific sense. Myth then becomes the best way to have a comprehensive view.

And, once we all understand the true nature of the universe, we can all take part in the discussion about why it exists.

Stephen Hawking, Stephen Hawking's Universe

At the same time it is traditional notions of human beings such as heroism that I believe will take us to the next step in human civilization.

I believe that man will not merely endure: he will prevail. He is immortal, not because he alone among creatures has an inexhaustible voice, but because he has a soul, a spirit capable of compassion and sacrifice and endurance. [ED.: please note the word "immortal"]

*William Faulkner, Nobel Prize Speech, Stockholm, Sweden,
December 10, 1950*

*I believe the new mythology must embrace the findings of science.
Our scientists and historians have already laid out the plot.*

Joseph Campbell, The Inner Reaches of Outer Space: Metaphor as Myth and as Religion

Yet science itself needs to understand its own limitations

Science, natural philosophy, proceeds on the information given by the senses. This line of its attack is thus limited and we cannot hope that anything but limited objectives can be reached. Science does not profess to solve ultimate problems. On the other hand it does seek to solve its limited problems with a known degree of accuracy and a known margin of error.

Men of science affirm..that 'the study of purpose in Nature is inconsistent with the scientific aim, which is an adequate description of phenomena.'

What was not realized was that the success of science was due to the faithfulness of its practice, while its destructiveness arose from the error of its philosophy which saw that practice as though it were the outcome of a world-view with which it was in fact fundamentally incompatible.

Charles Singer, *A History of Scientific Ideas*

Knowledge for knowledge sake has created an imbalance in our worldview. Human knowledge should progress evenly on all fronts. When our understanding of the physical universe far surpasses our understanding of ourselves a great disequilibrium occurs. It isn't as though we don't need to know all this stuff. It is simply that there are other things we need to know in order to make sense out of all this physical knowledge we have gathered.

Dr. Artz, Essays, (home.gwu.edu/~jartz/alterego.html)

Science and the institutions of science should not become a kind of unquestionable priesthood that is as inflexible as the Catholic church of the 1600s that tried and imprisoned Galileo.

Since Galileo, men of science have formed a sort of priesthood, which has been, not infrequently, opposed to another priesthood.

Charles Singer, *A History of Scientific Ideas*

In a sense we need to bring religion and science back in sync with each other.

According to Descartes the way you solve a problem is by breaking it into little pieces. So we developed a culture in the west, particularly, that is exceedingly good at breaking problems into little bits and pieces. So we are good at that. What we are not good at is putting it back together again.

Alvin Toffler, Interview in the documentary on electronic music
Modulations

Commenting on the Western fascination with technology and science, Dr. Eugen Weber, in his conclusion of his lecture series covering the entire history of the West, pointed out the importance of Greek mythological ideas which led to technology.

Really when you think about it, our patron saint is Prometheus who stole fire from the gods.

Eugen Weber, Professor of History, UCLA,
Public Television Series, *The Western Tradition*

When I was watching a documentary on the Sundance Channel about the new electronic music, one musician said he was trying to create a music that is "future-primitive." That seems like the perfect way to phrase it. I have played around with the idea of "modern-ancient" but a mythology that is future-primitive seems right.

One cannot predict the next mythology any more than one can predict tonight's dream; for mythology is not an ideology. It is not something projected from the brain, but something experienced from the heart, from recognitions of identities behind or within the appearances of nature, perceiving with love a "thou" where there would have been otherwise only an "it."

Joseph Campbell, *The Inner Reaches of Outer Space: Metaphor as Myth and as Religion*

Did anybody read on the front page of "TheTimes" that matter is decaying? Am I the only one that saw that the universe is gradually breaking down? There's not going to be anything left. I'm not talking about my stupid little films here. Eventually there's not going to be any Beethoven or Shakespeare.

Speech by Woody Allen, speaking in his movie *Stardust Memories*

Even though we have very small brains and we lead very brief lives...the fact is we're able to understand where we are because we can use instruments like the big telescopes, the physics that we learn on the surface of the Earth and the ideas the people have had over the last few centuries to build up a coherent picture. And I think we should be proud of that; I think we have done pretty well.

Bob Kirshner, Harvard University, *Universe 2001: Beyond the Millennium, Creation, Science Channel* (formerly the *Discovery Channel*)

Its incredibly interesting that there's a lot more we don't know about the universe than we do, in spite of all we've learned up to today. And therefore some of the wild ideas from science fiction including things like worm holes might or might not be possible; we just don't know at this point.

Lawrence Krauss, CWR University, *Universe 2001: Beyond the Millennium, Creation, Science Channel* (formerly the *Discovery Channel*)

Introduction To Toward A World Culture (2003)

I recently read Michio Kaku's book *Visions*. After interviewing about 150 scientists, Professor Kaku came to the conclusion that we now have "the potential for the first time to manipulate and mold these forces of Nature to our wishes."

Robert Zubrin, the well respected engineer formerly of Lockheed Martin and whose humans-to-Mars plan has been adopted by NASA, writes in his book *Entering Space: Creating a Spacefaring Civilization* that with known technology humans can now engineer the solar system to create non-polluting energy sources and mine the planets and asteroids.

If these two statements had not come from such respected scientists, the ideas might seem far-fetched. Instead both men are quite practical and knowledgeable. The conclusion is obvious. Humans can now control their own destiny and engineer the entire planet of Earth, the solar system and beyond. In short we are entering a completely unprecedented age in which we will now take control rather than being at the mercy of natural forces.

So these two books and the numerous recent findings in cosmology and astronomy got me thinking.

When I was very young, my father read me the books, *The Stars for Sam* and *The Earth for Sam: The Story of Mountains, Rivers, Dinosaurs, and Man*. And after that he read me the H.G. Wells, *A Short History of the World*.

At the age of eleven I bought a telescope and made a model of the solar system for a school project. When I was thirteen I read George Gamow's book *One, Two, Three... Infinity* and as much as I could understand about Einstein's Theory of Relativity.

In short this speculation is part of my blood. I am delighted to live in an era when we are beginning to unravel the basic questions of the Universe. In my own small way I want to add to this conversation as an interested observer who has watched the game from the stands and who does have a good layman's understanding of the rules.

So I began to wonder about our immediate situation which is something that I have written about for over 15 years. The Earth and civilization are in a crisis; we just don't know it yet. The environmental consequences of our lifestyle may lead to serious harm.

And next I thought about what could be done; how to create a world point of view. Clearly for a world civilization which would manage the Earth and start to shape the solar system, we needed to start with a concept of a World Culture. So I jotted down some notes about what a World Culture might look like and how it could be promoted.

Toward A World Culture (2003)

If the world of the year 2000 is to survive into the future, we have a lot of work to do. Global environmental problems may soon become a crisis which will take many years to solve.

I would like to see an Internet site that is dedicated to finding common ground between cultures and civilizations so that we, the peoples of the Earth, can cooperate.

If There Were Such A Site, I Would Tentatively Word It In The Following Way:

We seek a world culture that respects all peoples, races, religions, civilizations and differences while searching for and promoting an understanding of the Earth that is shared by all.

We do not intend this world culture to replace any existing culture, but rather to add to all cultures. Most people have a number of loyalties such as family, community, city, state or province and nation. A world culture simply adds another layer to these already existing layers.

In the near future we will need to prevent global warming, pollution of the oceans, over fishing of the seas, destruction of the forest and the atmosphere while promoting sustained development in all corners of the world and reducing population growth. We have no choice because to fail could mean the end of humans on this Earth or life as we know it.

Everyone can lend a hand. This quest for a World Culture is a heroic struggle that will meet with plenty of opposition. This effort will need dedicated people who will cooperate among themselves.

Accomplishing this will be a Herculean effort which will require extraordinary vision, new and untested ideas and the ability to withstand criticism. It may take one or even two life times to bring this about, if we are, in fact, successful. In many cases ideas will not work as hoped or promising ideas will not get the necessary backing. This is to be expected. Much will need to be tried, to find the good ideas that will work.

While a task on this scale normally would require massive funding, it is possible that a network of people could make a difference, by combining their different skills and promoting simple but workable ideas. In a sense this site is to promote a "think tank" at least for the more comprehensive and expensive projects. This could add an important voice to the struggle that will certainly be before us.

SUGGESTIONS AND IDEAS

As an artist I have limited my suggestions to art based projects but obviously there could be all kinds. Here are just a few suggestions. Naturally this list should be much longer and deeper. But it is a start.

World stories and myths for the modern age

I have written one such story for children in which I tell the modern scientific tale of the "Big Bang" like an ancient myth. This version of the beginning of the Universe is a belief that is now shared around the world.

World art and sculpture that uses local traditions, techniques and locations to create works of Earth based on experiences that we all have in common.

For example, artists could create sculptures that would be aligned with the sun at both equinoxes and solstices. These could be inspired by ancient monuments of a region that were used for determining the time of year such as Stonehenge, Mayan Temples and the astronomical observatories of ancient Persia.

Art that has a global or universal appeal

For example, I have created an online exhibit of colored snowflakes based on real microscopic photographs. These images are currently being looked at by teachers, students and many others around the world.

Needed are simple ideas, slogans and symbols that can be embraced by the diverse peoples of world

A world music

This seems to be happening on its own and might be the model for other art forms. Electronic music has the flexibility to be easily tuned, for example, for different ears around the world. It also has the ability to blend different music traditions.

The World Environmental Crisis Today (2003)

Ranked in the top 10 essays on this subject by Google for about 10 years

Dr. Michio Kaku has written that we live in an especially dangerous time. By time he does not mean the last couple of years or even the next fifty, but rather the hundreds of years it may take for us to progress from a planet of special interests to a planetary culture.

Right now we are in the infancy of technological development with crude energy sources and chemical processes that have the potential to destroy the environment either as by products of our civilization or with their deliberate destructive use in another world war.

Energy systems could be created that would cause virtually no pollution. Furthermore world wide economic development can proceed without harming the environment. Decentralized systems such as solar panels can bring electricity and non-polluting development to many corners of the world.

Yet the destructive technology that we continue to use will have consequences for many years to come. In fact, we will feel the effects long after we have stopped using this technology and switched to a more environmentally friendly one.

Global warming will affect just about everyone, even though it is primarily a small number of nations that are responsible for greenhouse gas emissions. The same holds true for radiation pollution, as we saw in the Chernobyl disaster. Radiation crossed national borders and ended up all across the world.

Even over-population will affect us all, because a severe strain on the ecosystem in one part of the globe will create stress on other parts.

This crisis is very real. If the global temperature increases and the sea level rises, there will be massive changes in the weather which will cause migrations across the world as well as wide spread flooding. In this kind of environment, new and rapidly spreading diseases could wipe out large numbers of people and the food supply could be threatened. These kinds of disruptions could also lead to wars.

The problem is that any solution is a long term solution. As Hans Blix, the United Nations weapons inspector before the second American-Iraq war, has pointed out, these environmental questions are much more dangerous than weapons of mass destruction. Yet since politicians do not often think beyond their four or eight year terms, they feel no urgency to risk their political future to forge a fifty or hundred year policy that may be required.

Heroes, Heroines & Heroism (2000)

The New Role Of Men And Women In The Modern Age

NOTE: This is not meant to be a complete or finished essay, but rather a suggestion of ideas that need to be explored and why they need to be explored. Before I can talk about the heroes and heroines of the future, I must talk about the heroes and heroines of the past. In the old view women played a vital but supporting role. In the next 100 years I believe women will redefine heroism in terms of feminine ideals and reshape the culture and perhaps the world. And while it may seem odd, that a man would want to talk about woman as heroic figures, I welcome this evolution in the culture and the human race.

Let us return to a time when a man was a man and a woman was all woman. When honor and pride led us to glorious victories. When a man and woman knew why they were put on this earth...

Let's take a deep breath and step back for a minute.

Civilizations have been driven, shaped and guided by their own particular myth of the hero. The future of a culture may depend on the culture's heroic ideals. The hero's story is one of wars and battles. He slays all enemies, passes all the heroic tests and the culture flourishes, rewarding him with riches, position and the woman he loves.

Even after the cynicism of the last century, with movies like *All Quiet on the Western Front* and *Mash* the conquering vanquishing hero is alive and well. Action movies make the most money at home and abroad, and we are talking about billions of dollars.

The myth of the hero seems to be a part of the human psyche. It may lead the young to self-sacrifice so that the culture can try to accomplish its goals. My father, who was a gentle sensitive man, found himself swept up in war fever in 1917 and went to Europe to "make the world safe for democracy." What he found was murder and carnage on a scale that is still hard to understand. When I asked him why, he said that he was young and looking for danger and adventure. "When you are young you welcome it," he told me.

Bob Hope introduced a beautiful young female singer to war weary troops with these words (paraphrase): "I thought you boys would just like to see what you are fighting for." The men yelled and hollered.

In the old myth women played only a supporting role, but were often the reason for the hero's actions. He goes through his trials so that he can win the hand of the woman he loves. The French have a saying, if you want to understand a man then "find the woman." Many a soldier in World War II could not have survived without letters from his "girl back home."

While we will still need heroes and heroines more than ever, the ideals must be changed, but they cannot just be reprogrammed. A new ideal of heroism will have to grow out of the old.

The anti-hero is one attempt to find a new mold for the hero. Anti-heroes are a modern twist. They range from Mafia bosses to vigilantes to policemen who bend the law to fit their idea of justice. The anti-hero is an individualist who is willing to take a stand against his or her culture for what he or she thinks is right. Since everyone has some major gripe about the society in which they live, most can sympathize with the anti-hero who finds an identity opposing it.

While a new kind of hero or heroine will probably have elements of the anti-hero, I do not believe that they will be anti-heroes. But I not sure what shape the new mythology should take. This is something that thinkers, artists, writers, film makers, story tellers, song writers should explore for many years to come.

Here are some of my ideas about how to give birth to a new kind of hero:

Because of technology and environmental problems, the world will go through a number of major changes for the foreseeable future. The roles of men and women will change drastically. Women will attain full equality and independence in the near future and will want to redefine the heroic in their own terms.

A number of critics view much of modern literature as a exploration of the role of men and the hero in modern society. For example. in the early part of this century, Hemingway redefined the hero in *A Farewell to Arms*. He questioned blind duty to a cause and ended up abandoning it. Men have been groping for a new ideal.

The Greeks conceived of a hero as one who was an intermediary between humans and the gods. This was the prime roll of the hero.

A new hero and heroine needs to be molded from the ashes of the old. The warrior code needs to be reshaped and forged again so that there is a guiding ideal consistent with the needs of today.

The Greeks conceived of a hero as one who was an intermediary between humans and the gods. This was the prime roll of the hero.

Prometheus is a central myth that has guided modern western civilization. He was clearly a tragic hero to the Greeks. Prometheus stole fire from the Gods and gave it to humans so they could warm their homes and smelt metal and cook food. Without fire humans would have been almost pitiful; with fire humans became the most powerful of the mortals. Zeus, who had no use for humans, was so mad at Prometheus he chained him to a rock; everyday an eagle came to peck at his liver, but since Prometheus was immortal the liver grew back so the eagle could peck it again. This myth has guided us, perhaps unconsciously, as we have stolen more and more power from the Gods and placed that power into our own hands.

A number of Greek Goddesses, Athena, Hera, Aphrodite, were extremely powerful and may point the way to a feminine heroine ideal.

Women need to develop a separate sense of being a heroine which is similar to the hero, but with feminine powers and insight. A good place to start looking would be the modern women who changed the 20th century such as Margaret Sanger, Evita, Eleanor Roosevelt, Madeline Albright, Susan B. Anthony, Simone de Beauvoir, Margaret Thatcher, Indira Gandhi and Hillary Clinton to name a few.

The goddesses of the Greeks and Romans but especially those goddesses before those male dominated eras ought to be explored. Also Egyptian, Babylonian, Sumerian mythologies should be looked at.

A sense of battle and fighting will always be part of the hero myth. Even a nurturing hero will have to fight a battle to win over the culture to his or her point of view.

Men need to develop a sense of the hero which is more nurturing, more open, more independent of their buddies and less based on the protection of women.

A sense of battle and fighting will always be part of the hero myth. Even a nurturing hero will have to fight a battle to win over the culture to his or her point of view.

My own feeling is that the major battle to be fought is the protection of the environment so that world will be safe for our children. The battle will be to win people's minds and to defeat short sighted interests. The hero should try to encourage a culture's sense of its dependence on the Earth and sky and water around it. While this war will not have swords and swashbuckling heroes, the battle is as difficult as any ever fought and as important.

The new idea of heroism must come from the old. It cannot be an artificial construct. An example is the Japanese idea of a warrior of wisdom. The "warrior" now uses wisdom as his or her weapon. Also in chivalry and knighthood are some Western notions that do not involve physical battles but spiritual ones.

Carl Jung said that there were several levels of the hero, from the action hero such as Tarzan, through the man of action such as Hemingway, to the thinking man who acts such as President Kennedy, to the thinker who can move people such as Gandhi. Somehow we have gotten stuck with the first two when the society desperately needs the latter two.

THOUGHTS ABOUT ART IN THE 21ST CENTURY (1997)

Including ideas about the environment, new definitions of male and female roles, heroes and heroism, nature, technology and science fiction

NOTE: Inspired by Kandinsky's book *Concerning the Spiritual in Art* published in 1911, I wanted to make a statement about where I thought art and civilization were headed. This is my first essay, written 15 years ago (as of the publication of this book). I wrote it before I owned a digital camera but I had been working with computers since 1983 and had done extensive work with digital imaging -- using a method I invented. I designed and wrote the software for an early Radio Shack computer, the CoCo, in which I digitized a number of photographs and then reworked them in the computer. Even at this point it was clear that digital photography was on the horizon and soon would make a major change in the art of photography. I wrote this as a working draft and invited other people to comment. It was well received and was circulated and reprinted widely in the early days of the Internet.

I. THIS IS AN UNFINISHED AND EVOLVING DRAFT

A. It is presented in outline form.

1. Many of the statements are in note form or are incomplete sentences.

B. I feel that artists and thinkers should offer unfinished works to the public as long as the works are labeled as such.

C. I am doing this in the spirit of the following ideas.

D. Although considerable work and thought has already been devoted to this statement, it is not unchangeable.

E. I invite comments.

F. I especially welcome suggestions about what to call this kind of art movement.

1. Please e-mail me your suggestions.

2. What would you name or call this kind of art

movement?

This article is an unfinished and evolving draft. I feel that artists and thinkers should offer unfinished works to the public as long as the works are labeled as such.

II. INTRODUCTION

A. Up until recently (about 100 years ago)

painters painted directly from nature.

1. Now most painters tend to create from their imagination, from subjective inner needs and inner impulses or they paint based on abstract principles or conceptual ideas.

a) Instead of drawing from nature directly, some painters draw from their inner nature.

1) For example, Jackson Pollock used to point out that he, himself, was nature.

2. Painting has become mostly studio oriented.

B. Painting has removed itself from nature for the same reason that the society itself has removed itself from nature.

People are no longer subject to the same devastating forces of nature that controlled their lives a mere 200 years ago.

1. People are no longer subject to the same devastating forces of nature that controlled their lives a mere 200 years ago.

2. Civilization has overcome nature to a large extent.

a) People live much longer.

1) In just 200 years our life expectancy has almost doubled.

a) People live more secure and predictable

lives.

1) For example, many lethal diseases have been wiped out or can be easily treated with antibiotics or prevented with a vaccine.

2) Both long distance travel and travel close to home can be reliably scheduled (most of the time) without being subject to the weather.

3) Communications are effortless

a] e.g., the phone, faxes, and e-mail on a personal level

b] e.g., TV, radio, magazines, newspapers, and the Internet.

4) We have a reliable and cheap supply of food and energy.

C. Painting in this century has merely reflected the break with nature that the civilization as a whole has experienced.

D. Human beings are a part of nature and until recently lived close to nature for better or worse.

1. For hundreds of years the goal of technology and science was to conquer nature, to subdue it to serve the need of humans.

a) This has largely been accomplished, for better or for worse.

The old relationship that humans had with nature has been broken and we can never go back.

E. In short the old relationship that humans had with nature has been broken and we can never go back.

F. However, in the near future we will be confronted with the problems that we have created.

1. The UN estimates that in the next century world population will reach the maximum that the Earth can sustain.

2. According to the *Larousse Desk Reference* the Earth will run out of many essential materials in the next 100-200 years.

a) Lead, zinc, mercury and tin are expected to run out in the year 2015, copper in 2035, nickel in 2060, iron in 2160, and aluminum in 2220.

3. In addition there may be global warming which is a consequence of civilization.

a) The weather and sea levels may be affected.

4. Further the destruction of hundreds of species and the destruction of the rain forest may affect us in ways we do not yet realize.

G. In short, we must learn to understand, confront, and manage our own nature because it is our nature that has created the world we live in today and will create the world of the future.

1. Our own nature is now our greatest danger.

H. In addition because we have become so large and dominant as a species, we must also manage the planet, become the custodians of nature and the Earth from which we came.

1. At this point we have no choice.

2. Because of the immense power we have achieved and which we will never relinquish, we must also

learn to manage the Earth itself.

I. The goals of the New Art will be to:

1. To explore and understand our own nature in relation to the Earth.
2. To explore a new relationship with nature since the old bond has been broken.

J. This is a heroic task in the best sense of the word.

1. There is no guarantee of success, but that is the nature of heroic tasks.
2. Painting and art is well suited to create new images and icons that can serve as touchstones and guides to our future.
3. Since this is where the future and civilization is leading us, it is only natural that painting and other arts would also move in that direction and be in the vanguard.

In short, we must learn to understand, confront, and manage our own nature because it is our nature that has created the world we live in today and will create the world of the future. Our own nature is now our greatest danger.

III. PRINCIPLES: IDEAS TOWARD A MANIFESTO

A. The word human comes from "humus" meaning soil or earth.

1. Human means "from the Earth" or "of the Earth."
2. Humans must constantly seek to renew, recreate and celebrate their relationship with the Earth from which they came.

B. Our goal is to create a new art which explores the relationship between humans and the Earth on

which we live.

C. Our goal is to also understand human nature in relation to the Earth.

D. To create symbols, icons, and experiences that guide and help humans in this understanding.

E. Works should explore modern expressions of: myth, vision, story, dreams, desires, wants, ideals.

F. In order to achieve the above there should always be an emphasis on the human scale.

G. Works should create or evoke a sense of place. A sense of place is important to a human's sense of belonging.

H. Since humans need to feel that they are "a part of things" or "a part of the world," works of art should help people bridge their sense of dislocation and alienation.

I. In order to help create a sense of belonging, works of art might refer to, derive from, or relate to previous art forms. By previous we mean the entire history of civilized art as well as primitive, prehistoric, folk, and naive art.

Humans must constantly seek to renew, recreate and celebrate their relationship with the Earth from which they came.

J. In order to help create a sense of belonging, works of art might include the natural rhythms of the Earth.

K. This art should often (but not always) be an inclusive art. By inclusive we mean an art which has wide appeal and is accessible to people.

1. Too much of modern art has appealed to in an in-crowd and deliberately put many viewers at a distance.

L. This is not a New Age philosophy

1. It's fundamental tenants are based on the best predictions by reliable sources.

2. i.e., that humans are about to reach the limits that this Earth can provide in terms of population, ability to extract essential resources, and the ability of the Earth to absorb and accommodate human by-products and pollution.

IV. THOUGHTS

A. Humans have a fundamental need to belong and to feel at home and to also feel a part of their world. This cannot be reprogrammed or removed from the human psyche without serious consequences.

1. One consequence could be that humans destroy the life sustaining power of the Earth which would doom the human race.

2. Humans are not machines whose needs and desires can be replaced and redesigned at will.

a) While changes can be made, they must be made within the limits of what the human psyche can accept.

3. Humans must recognize and come to terms with their animal nature before they can make meaningful changes.

a) Much of what we do is hardwired from 100,000s of years ago.

B. Art which includes the natural rhythms of the Earth could include:

1. the weather

a) e.g., why not installations that are designed to be looked at in rainy weather or cloudy days or sunny weather?

2. day and night

a) e.g., why not art forms that take advantage of the point in time that happens each twilight when artificial light and natural light are in balance?

3. the seasons

4. the landscape

5. the moon

6. the stars

7. the tides

8. the summer and winter solstice

a) The summer solstice has been largely forgotten.

1) Stonehenge and other ancient monuments were built to mark and possibly commemorate this event.

b) The winter solstice is marked and celebrated, essentially by Christmas and New Years.

1) One of the reasons that Christmas and New Years are such powerful ceremonies is that that human participate in an ancient ritual.

a] such as

i] lighting lights at the darkest time of

the year

ii] bringing a tree into the house

b] Much of the ritual of Christmas involves
pagan and Roman rituals

i] gift giving and a week long celebration
up to New Years is from the Roman Saturnalia
festival

c] Christmas is also powerful because it
involves the all the senses

i] church ceremonies

ii] music

iii] food

iv] smells

v] group gatherings

vi] color

vii] and of course involves the deepest
religious needs

~ the birth of Christ

9. the fall and spring equinox

a) the fall equinox is largely ignored as a
celebration

b) spring is celebrated by Easter

10. there were also mid-season festivals, some
of which we celebrate today

a) e.g., Halloween

b) Mid-season festival were not celebrated at
the exact mid-point but rather approximately at
the mid-point.

C. Although this is a heroic effort, it may

involve cooperative efforts among artists and involve artists and others from a number of disciplines.

1. An interdisciplinary new art may work with and include other arts such as poetry, literature, song, dance, theater, music, photography, sculpture and especially architecture.

a) Artists should at times work in collaboration. This kind of cooperation will create new art and art forms which involve synthesis and multiple disciplines.

b) This kind of cooperation will create an art which does not emphasize the individual artist as much as the partnership or a cooperative effort.

c) Examples in the past:

1) the ballets of Stravinsky which included famous choreographers and painters

2. The individual artist may be a little less important than he or she has been in the past.

D. While much modern emphasis has been on art that springs completely new from the artist's mind, our emphasis is quite different. Art should often evoke, refer to, pay homage to, or be related to earlier art or art forms.

1. In the history of art this has been the rule and not the exception.

a) It's only recently that artists felt they must create something completely new.

2. Even radical modern art has been related to

earlier art forms.

a) There are dozens of examples but here are a few:

1) Picasso studied African masks before creating the landmark modern masterpiece *Les Femmes d'Alger*

2) Paul Klee studied primitive and folk art of his country

3) Henry Moore drew on Pre-Columbian art for his sculptures

4) Jackson Pollock referred to the Navajo Indian sand paintings as partial inspiration for his drip paintings

5) Bartok used Hungarian folk music as a major part of his musical compositions

E. This new art should include an exploration of the myths and ideals that have guided humans in the past.

1. For example, some feel that modern western civilization has been primarily guided by the myth of Prometheus.

a) Prometheus stole fire from the gods and gave it to the humans.

1) This gave humans untold power, so much power that the Gods themselves were angry and punished Prometheus for doing it.

F. The particular construction of these images and symbols can be quite flexible.

1. In particular, it can draw on the history of

art of the last hundred years - the numerous experiments that have left us with a rich legacy to work with in creating a new expression.

G. It should at times be less studio oriented and more involved with the outside and Earth itself.

H. Architecture should include the outside and create transition areas from outside to inside, such as the buildings of Frank Lloyd Wright.

1. The buildings in which we live, should not be walls against nature with windows that don't open and air that becomes sick because it circulates within the building.

I. The change we are going through may be as profound as the change that humans experienced when they learned agriculture and the domestication of animals.

The change we are going through may be as profound as the change that humans experienced when they learned agriculture and the domestication of animals.

1. This change allowed civilization to flourish because there was a surplus of food and the food supply was more predictable.

J. Knee jerk political reactions and environment political correctness are not welcome. The purpose is an open inquiry and free dialogue.

K. An art which was less commercial would help attain these goals.

1. An art which you could not buy, or possess -- at least in the usual sense -- might be helpful.

2. For example, images created just for the

Internet which display best on computer monitors would not have commercial value and they could not be hung on the wall. Although a print could be made, the effect would be quite different than the image seen on a monitor:

- a) my, Rick Doble, digital images of "Woman in Motion" are such an example
- b) also images projected onto buildings

L. Some modern art has already moved in the general direction of our New Art principles - outlined above.

1. The "Land Art" movement

- a) Christo's wrapped landscapes
- b) *The Lightening Field* by Walter De Maria

2. Picasso's Chicago sculpture which contains wires that emit sounds when the wind blows through it:

- a) it is very appropriate for the Windy City
- b) it is a sculpture with a sense of place and a sense of the environment into which it was placed

3. Jackson Pollock's dripped paintings which were inspired in part by the Navajo Indian sand paintings. These sand paintings were created by shaman who poured colored sand into the shape of figures. Later the wind blew the sand away.

4. Brancusi's endless columns

5. The realistic sculptures of people

- a) these sculptures are on the human scale;

they are are so realistic that people react to them as though the sculptures were part of their space not like the usual sculpture that is separated from the viewer.

6. Rick Doble's digital images of "Woman in Motion."

a) My own art has concentrated on realistic images of humans -- they are based on Muybridge photographs -- that emphasize the human scale and yet the images themselves are iconographic and somewhat symbolic.

Because technology has changed, the roles of men and women are different.

M. Because technology has changed, the roles of men and women are different.

1. Women and men will be full equals.
2. This is one of the most profound changes in human nature.
3. The nature and role of women has changed.
 - a) Women now have control over their bodies.
 - b) Woman can now earn a living and be independent.
4. The role of men has changed.
 - a) Men need to find new models, new heroes to inspire them.
 - 1) The hero who subdued nature, protected and provided for his wife and children may no longer be valid.
 - 2) The male structures of hierarchy, chain of command and pecking order may need to be altered.
 - 3) The muscular male hero who defeats all foes

may need to be revised.

5. There needs to be stories and myths of the heroic that apply to both men and women.

N. While this is an inclusive vision, it does find fault with some modern trends.

1. Pop art legitimized advertising in a way that has made it much more acceptable. Advertising now enters every corner of our lives.

a) In particular advertising has intruded into our most sacred and important holidays and festivals. It has even started creeping into our personal anniversaries such as birthdays with mailed advertisements designed to reach the consumer just before his or her birthday.

2. Architecture, that creates canyon walls in the modern city, has ignored the human scale and the environment into which buildings are placed.

a) Buildings need to be more than boxes placed on a grid.

1) This destroys our sense of place and creates anxiety.

b) In many of these buildings you cannot open a window or get fresh air, hence the frequent "sick building" syndrome.

c) Architecture needs to be created that provides transitional areas from inside to outside and which does not set the building and the inside environment completely separate and apart from the

outside environment of the world.

1) For example, buildings should have some balconies, roof top gardens and other points that open to the outside.

3. We believe that this movement will be opposed by a number of people because it is not business as usual.

a) Some people will dismiss it as naive or try to paint it as a another new age philosophy.

1) This is flatly wrong.

2) Those who think this are themselves naive because it is clear that the Earth and human kind will go through major changes in the next century.

Some people will dismiss these thoughts as naive, or try to paint them as a another new age philosophy. This is flatly wrong.

3) The warnings and basis for our philosophy are based on the best current information and predictions by the most informed sources.

b) While we do not oppose commercial art, we would de-emphasize it.

1) This is bound to upset people who make a living from the buying and selling of art.

a] They will try to belittle its implications.

APPENDIX

List of Rick Doble's websites that relate to these essays:

www.rickdoble.net

Painting With Light

www.rickdoble.net/paintingwithlight

Animations

www.rickdoble.net/animate

A Children's Story About the Big Bang of the Universe

www.rickdoble.net/children/default.htm

Seasonal Photographs

www.rickdoble.net/default.htm#seasonal_digital_photos

Books:

Book Author & Photographer: *Experimental Digital Photography*, by Rick Doble, Lark Books (a division of Sterling Publishing), New York/London, 2010. 200 pages, 300 photographs by Doble. Book in its second printing in 2012.

Author/Poet: *Living My Life As an Artist, an Autobiography: True Stories of Art, Love, Family & the Creative Process Told in Poetic Form*, by Rick Doble, Lulu.com, 2012. 222 pages -- when set to the normal ebook font size setting and viewed in full screen mode.

Book Author & Photographer: *The Everything Digital Photography Book*, 2nd Edition by Rick Doble, Adams Media Corporation, Avon, MA, 2008. 362 pages, 77 photographs by Doble.

Book Author & Photographer: *Career Building Through Digital Photography* by Rick Doble, Rosen Publishing Group, New York, 2007. 64 pages, 6 photographs by Doble.

Articles:

Pixiq.com Photo Expert Columnist: Author of over 50 blogs at Pixiq.com from 2011-2013 (until Pixiq closed its website).

.....Featured article series: 5 parts: *Visual Art & Digital Photography*, 2011.

.....Featured article series: 3 parts: *A Brief History of Light & Photography*, 2011.

***Aplimat (Journal of Applied Mathematics)* an international journal, Bratislava, Slovakia:**

.....Doble listed as one of three authors: *Motion And Dynamism: A Mathematical Journey Through The Art Of Futurism And Its Future In Digital Photography*, 2011.

.....Three of Doble's essays referenced: *Art & Mathematics: Motion And Fourth Dimension*, 2008.

***Shutterbug Magazine*, author/photographer article: Shake Shots – Movement Makes Light Paintings, 2010.**

***Life Imitating Art Magazine*, essay author: Post Style, 2002.**

Education:

Rick Doble has a M.A. in Communications from the University of North Carolina at Chapel Hill, 1974 and a B.A. in English from UNC-Chapel Hill with an Honors in Writing, 1966.