

FIG. 2 · *The Drummer*, 2004, by Loretta Lux.

I Into the Digital

“But why not just kill the photo, there and then?”
 “Because she might want to look at it again. Because it meant something to her. Something? A great deal? Everything?”

—Penelope Lively, *The Photograph* (2003)

Photography, as we have known it, is both ending and enlarging, with an evolving medium hidden inside it as in a Trojan horse, camouflaged, for the moment, as if it were nearly identical: its *doppelgänger*, only better.

Like all media, photography is a reflection of the societies that have spawned and embraced it. It can also be a powerful instigator, in both obvious and highly subtle ways, for societal and personal change. The process is dialectical, evolutionary, and largely unconscious, opening new possibilities while others are defused.

Digital photography has been configured as a seamless, more efficient repetition of the past, easier to sell to the apprehensive consumer even as it is celebrated as part of the “digital revolution” (a term that has joined the lexicon of consumer branding). Its name is intended to express massive change while paradoxically citing a medium that dates from the mechanical age. A comforting ambiguity results that, not coincidentally, abnegates our own responsibility for what we have invented.

A string of misnomers is conceived to contextualize and undercut sensitivity to the actual revolution that is only alluded to by “digital.” We are given terms from nature and from the utilitarian everyday—apple, mouse, web, blackberry, windows, lap top, desk top, word, personal assistant, fire fox—to describe an environment that has, as of yet, no taste, no smell,¹ and where touch is reduced to clicking and typing and sight is continually framed by yet another rectangle.

What the metaphors also hide is the remarkable self-containment of this new technological universe. “The simulated desktop that the Macintosh

presented came to be far more than a user-friendly gimmick for marketing computers to the inexperienced," wrote MIT psychologist Sherry Turkle in describing her surprise at getting her first Macintosh. "It also introduced a way of thinking that put a premium on surface manipulation and working in ignorance of the underlying mechanism.... With the Macintosh, personal computers began to present themselves as opposed and even hostile to the traditional modernist expectation that one could take a technology, open the hood, and see inside. The distinctiveness of the Macintosh was precisely that it did not encourage such fantasies; it made the computer screen a world unto itself."

It is a world where the human often feels at a disadvantage, where the machine is considered smart and the human sometimes stupid. Banging the machine in frustration will accomplish nothing, it has better things in store for you. Or, as Umberto Eco noted of the Macintosh and what he characterized as its Catholic roots: "It is cheerful, friendly, conciliatory, it tells the faithful how they must proceed step by step to reach—if not the Kingdom of Heaven—the moment in which their document is printed. It is catechistic: the essence of revelation is dealt with via simple formulae and sumptuous icons. Everyone has a right to salvation." (In a similar vein, Eco argued that MS-DOS could be seen as Protestant and Windows as representing an "Anglican-style schism.")² The typewriter, considerably more transparent, made no such claims.

The computer also promises a secular *über*environment in which "reality is merely a convenient measure of complexity," as Pixar's Alvy Ray Smith once put it, to be simulated by computer graphics and ultimately transcended. Induced to sign on, to purchase hardware and software, we become "users," a moniker embracing both computer devotees and drug addicts. (In Web statistics we are also known by the dubious but commercially valuable sobriquet "unique users.")

The mimetic disguise of the computer, with its "paint" programs and Web "pages," minimizes digital media's profound departures from its predecessors. Based on distinct segments, calculated choices, binary strategies, and on bytes rather than atoms, digital media work off a representational model that, while able to simulate analog media, eventually will be more transformative than the perspectival changes of the Renaissance or the experimental arts of the past century. Digital media leverage abstraction, nonlinearity, asynchronicity, the dance of code over texture, multiple authors,

and most important the circumvention of nature as we have known it, while redefining space and time. It stimulates other logics and ultimately new philosophies of life, moving from the authority of the Newtonian to the probability of the quantum, and from the visualization of the phenotype to a preference for the coded genotype.

Digital media translate everything into data, waiting for an author or an audience (or a machine) to reconstitute it. Images can be output as music or music turned into text, or created by an algorithm, or transformed by an anonymous and far-flung chain of spectators. A synthesizer makes music that sounds almost like it's coming from a flute, but it can also combine the sounds of a frog and a goose, and add a random function that precipitates a mix to create the voices of new beings—the digital inhabits the land of in-between, and beyond. Similarly, a photograph may be considered a menu to be touched or clicked, or simulated (although the scene depicted may have never occurred, and possibly never could), or its o's and i's may be transmogrified into anything else at all.

Sections, segments, and steps are the stuff of the digital; analog media reference (are analogous to) continuity and flow. Digital involves coded signifiers, data that can be easily played with, abstracted from their source; analog emanates from wind and wood and trees, the world of the palpable. Digital is based on an architecture of infinitely repeatable abstractions in which the original and its copy are the same; analog ages and rots, diminishing over generations, changing its sound, its look, its smell. In the analog world the photograph of the photograph is always one generation removed, fuzzier, not the same; the digital copy of the digital photograph is indistinguishable so that "original" loses its meaning.

Like a novel, and our earthly lives, a vinyl record was created with the intention that it be experienced within the logic of a beginning proceeding to an end; a music CD or iPod is made to be resequenced, shuffled, and rethought. In digital media, nonlinear and interactive, no two people will necessarily read the same words in a book, listen to the same music, or experience a film or photo essay in the same sequence.

Cause and effect, even life and death, flicker nostalgically in the rearview mirror that is now the twentieth century. Immodestly, we envision the immortality of being able to give postmortem interviews or of composing while literally decomposing long after death.

When the world was created in seven days, as the story goes, the process did not begin on day four, rest on day seven, and then skip back to day two. Light was separated from darkness before the animals were created. But in the digital story of creation not only can the sequence be reshuffled at will, or randomly, the story can be cross-referenced, mutated, linked, laid over with numerous other media, responded to in “real time,” and evolved in an infinite number of ways that have little to do with an everyday sense of darkness, light, water or breath—or of a logical God. Creation is reconstituted, open for re-creation, linked, perhaps, to the speed of a butterfly’s wings over Hong Kong or to the score of a football game in São Paulo.

Similarly, a digital watch does not have hands mimicking the diurnal movements from light to darkness as the sun rises and sets (twilight is not a digital concept), but refers self-referentially to its own more abstracted world of integers. In the transition to the digital every creation is reconfigured, made more pliant, primed for human manipulation—potentially becoming the ultimate consumer choice.

Likewise, photography in the digital environment involves the reconfiguration of the image into a mosaic of millions of changeable pixels, not a continuous tone imprint of visible reality. Rather than a quote from appearances, it serves as an initial recording, a preliminary script, which may precede a quick and easy reshuffling. The digital photographer—and all who come after her—potentially plays a postmodern visual disc jockey.

At the next frontier, code triumphs over appearance. Phenotype, the stuff of photography, once trumped genotype (in the “image of God”). In the information age it is the DNA that has been crowned humanity’s essential arbiter. (What is the sex act if not an exchange of information?) One day soon we will ask of the image: “From where do those blue eyes come?” expecting that the answer will be conveyed in code.

Moreover, the photographic act, once requiring the presence of a seer and the seen, the distillation and creation of aura, the focus not only of lens but of one’s intuitive mind, evolves into one more quick and omnipresent communication strategy, casually enacted using telephones and personal digital assistants, Web cams and satellites. Added to a plethora of text messages and e-mails, it contributes mightily to a condition that former Microsoft executive Linda Stone called “continuous partial attention.” One may wonder about the dialectical role of attention deficit disorder and other

psychiatric maladies. To what extent are they symptoms, and to what extent do they cause some of the frenetic digital multitasking strategies?

“The great divide—between the reality of temporal and spatial distances and the distancing of various video-graphic and info-graphic representations—has ended,” wrote cultural theorist Paul Virilio in 1984. “The direct observation of visible phenomena gives way to a tele-observation in which the observer has no immediate contact with the observed reality.” Like the modern soldier, one eye on a small screen showing what is happening miles away, and the other concentrated on the battlefield just ahead, we too live in multiple spaces, talking to and seeing images from distant friends and acquaintances while walking down the street, the experiences merging.

Painting was posited to have preceded, inspired, and then been threatened by photography in the nineteenth century—the handmade versus the mechanical. In the twenty-first century photography of the digital kind—wired, instantaneous, automatic, malleable, a component of a larger multimedia—may eventually turn out to have a more distant relationship with the film-and-chemicals variety that came before it.

This is not to suggest that there has ever been only one kind of photography. Since early in its history there have been a whole slew of strategies, ranging from phantasmagoric “spirit” photography to the blandest mug shots. It has been used in a utilitarian way to document, in a transcendent way to create art, and as a vital hybrid of the two. Despite the variety of approaches, photography has achieved the paradoxical credibility of a subjective, interpretive medium that has simultaneously been deemed reliable and ultimately useful as a societal and personal arbiter.

Its perceived credibility, to whatever extent it exists, has been a useful function, especially as evidence of one sort or another. But its perceived credibility has also been purposefully misused to manipulate the public since the medium’s inception for political and commercial goals. The introduction of digital photography, noted for its nearly effortless malleability, provides a propitious moment to ask whether this evidentiary role can and should be retained, or even expanded. Certainly there is a substantial number of potential witnesses: by the year 2010 it is expected that we will be producing half-a-trillion photographs annually.

For those who think of digital media as simply providing more efficient tools, what we are witnessing today is an evolution in media. This is

the more reassuring, business-as-usual stance, probably held by the majority. For those who see the digital as comprising a markedly different environment than the analog, what we are currently observing is no less than a revolution. This latter view is considerably more accurate.

All emergent media borrow heavily from previous media at first, primarily because it takes time to summon the energy and imagination for a dramatic reinvention. (In 1964, McLuhan argued that “the content of any medium is another medium.”) Early film looked like theater depicted on a screen (see D. W. Griffith’s *Birth of a Nation*, for example). Early television looked like a visualization of radio with men in white shirts and ties, newly apparent to the public, reading the news from behind microphones. Early photography self-consciously and somewhat insecurely imitated the textures of painting, as in Pictorialism.

We should be suspicious of the easy melding of photography into digital photography, focusing on initial similarities. In a sense, it is somewhat like continuing to think of the automobile as a horseless carriage. Even now the speedy, multi-ton, climate-controlled, gas-guzzling vehicles dependent upon computer chips and equipped with GPS and ABS, DVD and MP3 are advertised as being run by a more naturalistic “horsepower” (one current commercial alludes to 263 horses). The metaphor of the horseless carriage, even a century later, manages to minimize the manifold ways in which the automobile long ago transcended its beginnings.

Horses kept things mostly local, constrained by the biological; automobiles, like cyborgs, did not. The paving of vast stretches encircling the planet, the growth of suburbs, as well as the displacement and degradation of the extended family can be attributed in considerable measure to the automobile. The proliferation of malls, countless deaths in high-speed accidents, and the enduring obsession with oil have little to do with horses. Would anyone have bothered to invade Iraq for hay? And whatever unpleasantness a horse leaves behind is trivial compared to the smog, lung diseases, and hugely destructive perils of climate change.

The automobile also eventually heightened our sense of control, and perhaps even more importantly our sense of entitlement. Enhanced expectations of power and of mobility came from the automobile and its motorized descendants—family, work, leisure, and war can all happen at a distance, day or night, and in all kinds of weather. A new 24/7 mobility over a vast

network of roads became the conceptual metaphor for what was earlier called the “information superhighway.” (Now it has been reformulated as the more centralized Web, like “horseless carriage” a more naturalistic reference, but one that also has overtones we choose to ignore of being captured and devoured.) The Internet can claim partial descent from a planetary road system, with the fantasy fulfillment of no stoplights, tolls, or gas pumps as people zip from one Web address to another.

Similarly, the mentality of automobile-obsessed cultures had earlier helped to spawn the rapid-fire, semiconscious zapping from one television channel to another (remote control in hand, we are always in the passing lane) and the joystick-controlled navigation of video games. At high speeds, the external world had become increasingly remote and inconsequential behind the windshield. Virtual reality could not be far behind.

Like the automobile, the photograph created new realities. Part of the problem in distinguishing them is realizing that for many of us the world is largely envisioned, even in the absence of a camera, as photographic.

“My view of the world was a photographic view, like I believe that it is for almost everybody, no?” sculptor Alberto Giacometti stated over forty years ago. “One never sees things, one always sees them through a screen.” The multitudes of photographers now intensely staring not at the surrounding world, nor at their loved ones being wed or graduating, but at their camera backs or cell phones searching for an image on the small screens, or summoning the past as an archival image on these same screens, is symptomatic of the image’s primacy over the existence it is supposed to depict. It is as if we have banished the actual experience and instead flattened it into a small rectangle, preferring its commodification as a picture show. It is not because it makes it more immediately “real” that we prefer the image, but because it makes it more unreal, an unreality in which we hope to find a transcendent immortality, a higher, less finite, reality.

We are also changed, turned into potential image. Even before the ubiquity of a billion cell phone cameras, we were already in rehearsal for the pose, the look, and a diminished sense of privacy. “In a YouTube world, one’s home is no longer one’s private retreat: it’s just a container for the webcam,” as the *New York Times* recently put it. Wars, sports events, weddings, graduations, and even funerals are staged. Advertisements promise a picture-perfect vacation. Actress Ellen Barkin complained, upon her separation from billion-

aire Ronald Perelman, that “You don’t spend years with someone and they’re just Photoshopped out of your life.”³ Young people are continually imaging and re-imaging themselves for a better MySpace or Facebook profile. One teenager described his date to me as being “sufficiently photogenic.”

Photographing well trumps a more ethereal beauty; a variegated existence is suppressed for an ever more exigent two-dimensional photographic currency. In his novel *White Noise*, Don DeLillo limns the photographic disconnect as well as anyone has ever done:

Several days later, Murray asked me about a tourist attraction known as the most photographed barn in America. We drove twenty-two miles into the country around Farmington. There were meadows and apple orchards. White fences trailed through the rolling fields. Soon the signs started appearing. THE MOST PHOTOGRAPHED BARN IN AMERICA. We counted five signs before we reached the site. There were forty cars and a tour bus in the makeshift lot. We walked along a cowpath to the slightly elevated spot set aside for viewing and photographing. All the people had cameras; some had tripods, telephoto lenses, filter kits. A man in a booth sold postcards and slides—pictures of the barn taken from the elevated spot. We stood near a grove of trees and watched the photographers. Murray maintained a prolonged silence, occasionally scrawling some notes in a little book.

“No one sees the barn,” he said finally.

A long silence followed.

“Once you’ve seen the signs about the barn, it becomes impossible to see the barn.”

He fell silent once more. People with cameras left the elevated site, replaced at once by others.

“We’re not here to capture an image, we’re here to maintain one. Every photograph reinforces the aura. Can you feel it, Jack? An accumulation of nameless energies.”

There was an extended silence. The man in the booth sold postcards and slides.

“Being here is a kind of spiritual surrender. We see only what the others see. The thousands who were here in the past, those who will come in the future. We’ve agreed to be part of a collective perception. This literally colors our vision. A religious experience in a way, like all tourism.”

Another silence ensued.

“They are taking pictures of taking pictures,” he said.

He did not speak for a while. We listened to the incessant clicking of shutter-release buttons, the rustling crank of levers that advanced the film.

“What was the barn like before it was photographed?” he said. “What

did it look like, how was it different from other barns, how was it similar to other barns? We can’t answer these questions because we’ve read the signs, seen the people snapping the pictures. We can’t get outside the aura. We’re part of the aura. We’re here, we’re now.”

He seemed immensely pleased by this.

The aura DeLillo describes has, if anything, expanded, and photography’s primary task has become not only to maintain the aura but also to enlarge it. When Susan Sontag wrote in the 1970s, “A photograph is not only an image (as a painting is an image), an interpretation of the real; it is also a trace, something directly stenciled off the real, like a footprint or a death mask,” the “real” she was referring to was the scene itself, not its simulation.

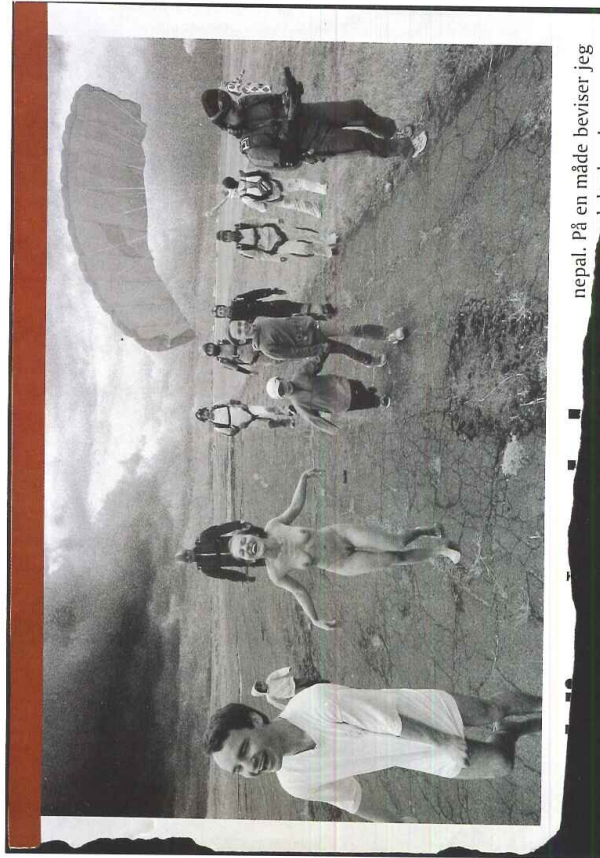
Where then is the “real” now? Increasingly we are looking at photographs of the map that refers to no territory: the pictures of pictures, the photo opportunities in which politicians and celebrities have their managers stage a scene as if it had actually happened, the photo illustrations that magazines adroitly set up to prove a point, the advertisements for products too glossy to exist, the media filters that reduce life to a shorthand of shock and voyeurism. They are invariably done with a sense of superiority, as if by capturing the image we somehow own the experience. A 1990s Kodak advertising slogan, “Let the memories begin,” became another ploy to obscure the repression of the present.

“Consider the United States, where everything is transformed into images; only images exist and are produced and are consumed,” the French theorist Roland Barthes commented in 1981. Earlier in the century the German poet Rainer Maria Rilke had argued, “Now is emerging from out of America pure undifferentiated things, mere things of appearance, sham articles. . . . A house in the American understanding, an American apple or an American vine has nothing in common with the house, the fruit, or the grape that had been adopted in the hopes and thoughts of our forefathers.” In the globalized marketplace both image and sham are spreading, intertwined.

Once the world has been photographed it is never again the same. (This is where Eve and the Apple come in.)

Once the images begin to replace the world, photography loses much of its reason for being.

Into the vortex, then, comes the digital.



nepal. På en måde beviser jeg
at det kan bruges på

2 Of Pixels and Paradox

Already, one would say that human cloning is on its way to becoming, for a part of the contemporary public, an operation as simple as having one's portrait taken by a photographer in the previous century.

—Paul Virilio, *The Information Bomb* (1998)

After a lecture I gave in the 1990s on some of the ways in which photographs were being manipulated with a computer, a woman in the audience stood and responded: That's exactly what we're doing in genetics. Except while you're working with the images, we're working with the DNA.

While those in media have been modifying the eye or skin color in photographs, changing textures or modifying body types, geneticists have been experimenting with strategies to change the actual physical person. Whether aware of it or not, those manipulating photographs are preparing the way for fundamental personal and societal changes.

The more than two decades of frequent alteration of photographs in the press have made genetic manipulation more palpable, immanent, and perhaps even inevitable. If one can repeatedly show brown eyes turning blue, lips and breasts enlarging, and any and all putative "flaws" disappearing, the process seems less scary or remote. If we, like our jeans and our cars, can transition from a solid physicality into the allure of image, then we too become more likely candidates for manipulation.

Our celebrities are already easy prey. As one who was, during the past decade, offered Mel Gibson's body to replace my own by an editor of a major magazine, I can attest to the insinuating seduction of becoming image, even someone else's. After first having refused any image alteration at all of my body I was asked, "What are your ground rules?" "For what?" I asked. "For manipulating your image." I had not thought about any ground rules, but I felt I should be generous: "You can change my tie, or make my hair shorter." I replied. It

FIG. 3 · *Nepal*, 2003, From Polish artist Zbigniew Libera's series, *Positives*.

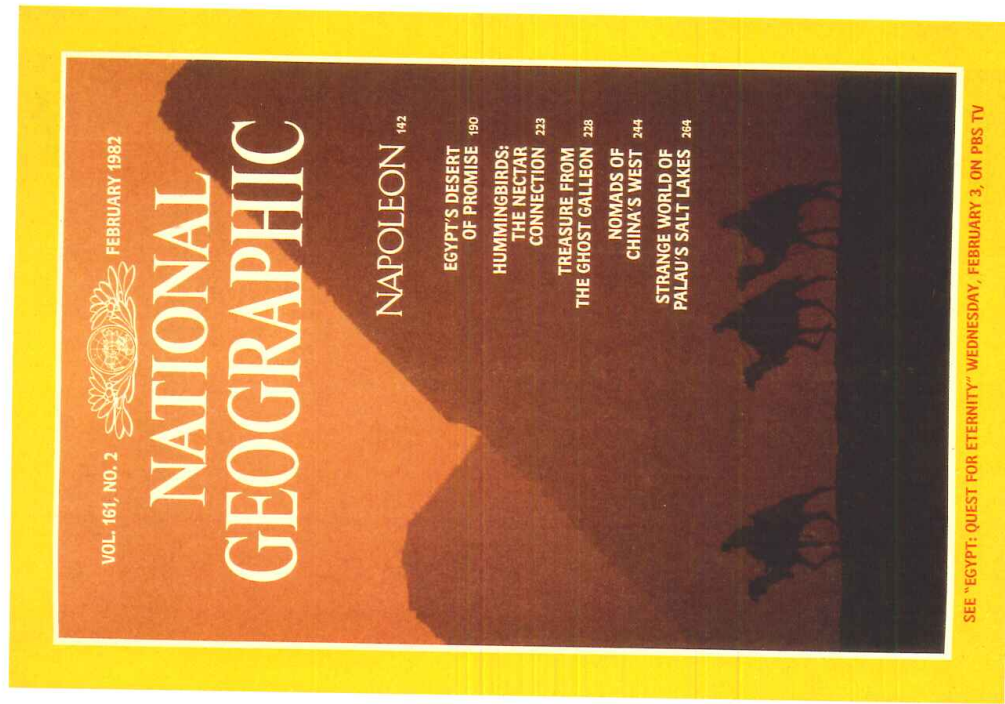


FIG. 4 · The digital era in photography can be said to have begun with this manipulated 1982 cover.

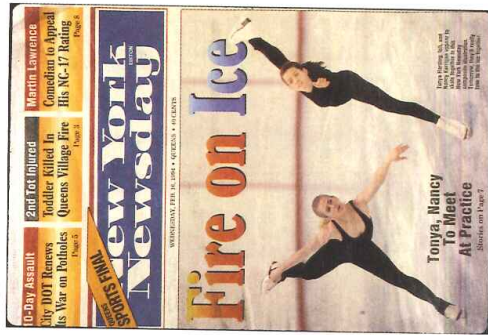
was then that I was offered Gibson's body and rejected it. I had a queasy feeling that by doing so I might have forestalled the publication of another writer's article on image ethics, for which this composite was apparently needed.

But a photographer was sent to make my portrait. However, he told me that the photo would be manipulated later. I asked him if he knew how the editors would modify his photograph. He did not. Watching his assistant set up lights, the lens pointed at me, I felt that however I would choose to present myself would be meaningless; the photograph would later be changed by someone who had never even met me. And for the first time I saw a photographer as no more than a paid researcher looking for images for someone else to re-present. The new post-photographic process had diminished both the professional photographer and his subject—we were, like so much else these days, part of a larger system controlled elsewhere.

Now it can be possible as well for an art director or editor on another continent to virtually look through a viewfinder to consult on the framing, or to review the images as they are uploaded even while the assignment is in progress. In the days of film one would have had to be physically on site to be able to micromanage the photographer; the photographer's autonomy was somewhat more impervious.

If I had to pick a date when the digital era came to photography, it would be 1982. It was then that *National Geographic's* staff modified a horizontal photograph of the pyramids of Giza and made it vertical, suitable for the magazine's February cover. They electronically moved a section of the photograph depicting one of the pyramids to a position partially behind another pyramid, rather than next to it. It was a banal change—after all, the original photograph was an already romanticized version of the scene that excluded the garbage, tourist buses, and souvenir hawkers—but it opened the digital door. Robert E. Gilka, then *Geographic's* director of photography, said the introduction of such technique was "like limited nuclear warfare. There ain't none." Interviewed two years after the cover's publication, the magazine's editor-in-chief, Wilbur E. Garrett, was more sanguine, referring to the image modification as merely the retroactive repositioning of the photographer a few feet to one side so as to get another point of view.⁴

Unintentionally, the rather conservative color magazine had introduced time travel to photography. When I later explained this to an older



French photographer, Edouard Boubat, he seemed anxious, imagining someone in the future tempted to alter his black-and-white photographs for another point of view. ("They will only do this to color, no?") Perhaps he was wondering why he had waited hours for a scene to unfold in the street when someone could simply fabricate a similar image. In the French context, more supportive of the moral rights of the author than the American legal system, based on copyright, such a possibility can be even more distasteful.

Geographic's rationale, contravening or even transcending the presence of the author, is reminiscent of between Natalie Cole and her long-dead father, Nat King Cole, recorded in the 1990s, or an animated film made posthumously from László Moholy-Nagy's still photographs. Some of these are meant as tributes, while others are circumventions. Will anyone animate one of the classics of landscape photography, Ansel Adams's *Moonrise, Hernandez, New Mexico*, bringing the image to daybreak? The fractional second when the image was recorded is made to expand; the famous "decisive moment" of Henri Cartier-Bresson can occur more easily, and just as decisively, decades after the image was taken. Authorship becomes malleable, even an unintended posthumous collaboration.

If one can reach into the past why not photograph the future? On the front page of the newspaper *Newsday*, feuding Olympic skaters Tonya Harding and Nancy Kerrigan were shown at an anticipated meeting on the ice as if they were already the next day. "Fire on Ice, Tonya, Nancy to Meet at Practice," read the February 16, 1994, front page, with a smaller-type explanation of how the image was composited so that the two athletes "appear to skate together." Photographic time, rather than the fixed moment of a privileged encounter

FIG. 5. This 1994 image may be the first published "future" news photograph.

between observer and subject, is restructured. The photographer's role, unsurprisingly, becomes less consequential.

That same year a *Time* magazine cover image—a significantly darkened, blurred version of a mug shot of O. J. Simpson upon the occasion of his arrest on suspicion of having committed a double murder—was described by the magazine's editor in a letter to readers the following week as merely an attempt to lift "a common police mug shot to the level of art, with no sacrifice to truth." Widely viewed as racist—why darken a celebrity's skin tone upon his arrest, but not when he is selling Hertz rental cars on television?—the ability to revise a key historical document almost simultaneously with its creation was an exercise that the magazine's editors, at that time, undoubtedly would have criticized anybody else for undertaking. It is difficult to imagine anyone similarly tampering with Abraham Zapruder's amateur film of the John F. Kennedy assassination when it surfaced, although decades later filmmaker Oliver Stone did exactly that.

Similarly, a news photograph of a Swedish plane crash appeared in Finnish newspapers, even though there was no photographer present and no camera. After talking to eyewitnesses, the image was composited (and was later said to be rather accurate according to video footage that was uncovered

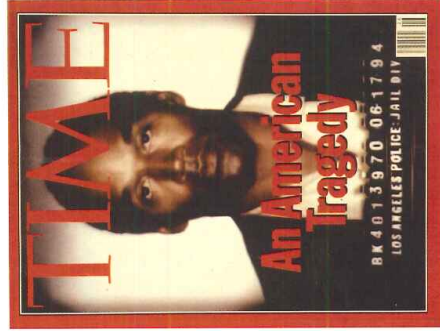
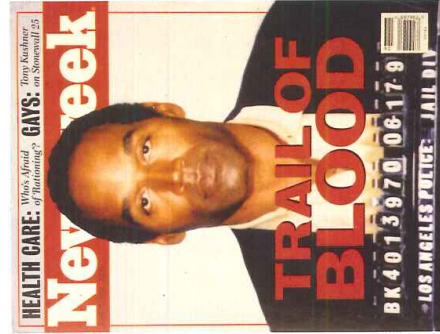


FIG. 6. The two newsweeklies appeared on the same day, *Newsweek* with a Los Angeles Police Department mug shot and *Time* with a manipulated version of it.

of the scene). Imagine then the famous Clinton-Lewinsky tryst being retroactively “photographed” according to one of their accounts, presumably Lewinsky’s. The media might finally have been able to stop obsessing about what had happened and, as a result, the U.S. government might then have been able to proceed with other more important business. Does the photograph still require a photographer, or even a camera?

While placing facts and their own *raison d’être* as authoritative sources into question, these corporate entities were also unconsciously playing the role of an avant-garde, pioneering new forms of imaging considerably ahead of most artists and documentarians. Their unintentional playfulness, while destructive, can also be seen as inspiring new, as of yet unrealized, potentials.

In 1984, two years after the *National Geographic* cover had been manipulated, I found myself in Boston working with a technician to create an illustration for an article on new photographic possibilities. We manipulated a color photograph of the New York City skyline using a very costly and complex Scitex system, adding an image of the Eiffel Tower, Transamerica Pyramid, and Statue of Liberty, turning on lights in an office building, creating a traffic jam around the newly arrived Statue of Liberty, and moving a taller Empire State Building a few blocks uptown. Later that day I flew back to New York and, riding in a taxi and looking at the same skyline, I had a sensation reminiscent of a God complex, as if I had actually been able to move tall buildings. For me, photography had irrevocably been changed. For today’s generation raised on Photoshop, the experience would probably seem mundane.

When, as a college freshman, I had first watched a piece of exposed paper in a chemical bath mysteriously turn into a photograph, the encounter seemed magical, a kind of alchemy. Now, in the nascent digital era, the photograph was already extant and the magic was in modifying it. No longer was it the slow emergence of the “trace” or “footprint” that was “directly stenciled off the real,” as Sontag had put it, which was captivating, but the manipulation of the images themselves.

A few years after the skyline manipulation, sitting on a New York City subway and looking at the photographs posted throughout the car, particularly those above the passengers across from me, I began to doubt that what they represented actually existed. Was the man photographed speaking at the podium ever there? Did he ever exist? What of the people depicted in busi-

ness suits, in a taxi, or on a picnic? Were they complete fantasies? The question for me was not whether the image had adequately and accurately interpreted the person or the scene depicted but whether in fact the person or the scene had even existed.

I began to sweat, unsure as to whether this entire system of referents was functioning. Seeing certainly was not believing, and the photographs seemed to represent openings to an alternative universe synthesized according to discordant goals, which I could only assume were commercial and subversive.⁹ Two decades later my response seems hopelessly naïve.

Certainly, photographs were retouched and staged since the beginning of the medium’s history. Hippolyte Bayard’s 1840 faked *Self-Portrait as a Drowned Man* serving as a very early example. But the frequency of the occurrences and the fact that image alteration can be accomplished by nearly anyone with basic computer skills has triggered mounting societal skepticism. According to a 2005 Consumer Reports WebWatch national poll, 30 percent of Internet users said they had little or no trust in news sites to use pictures that had not been altered. Given that such sites are the flagships for photography as a documentary medium, one can hardly claim a generalized confidence in the medium’s ability to cause the reader “to confront in it the wakening of intractable reality,” as Roland Barthes put it at the end of *Camera Lucida*.

If photography’s stenographic function is doubted, its recording fidelity no longer a given, then using it to give credibility to the stage-directed dictates of leaders and celebrities or constraining it to the generic images that make up journalistic shorthand (solemn leader, grieving widow, starving child, fiery explosion, etc.) will make its purpose transparently ceremonial. If documentary photographs cannot be trusted at least as a quotation from appearances, then photography will have lost its currency as a useful if highly imperfect societal arbiter of occurrences, including the accidental and the spontaneous, and have become a mere symbol of spin.

A generalized skepticism, of course, can also be advantageous. Photography will have a chance to mature as a language, not relying so heavily upon its stenographic function but upon its expanded linguistic fluency. Its role becomes that of a less proximate signifier like words, paintings, or drawings, but with the background duality of its surviving role as direct trace. Its author, rather than being ignored or circumvented as the one who merely

holds the camera, can emerge as central, with a point of view like other creators. And those in power will not be as able to use photography to “prove” what the medium will no longer be able to confirm.

Why stage an event when few will believe its depiction anyway? For example, a photographer known for his risk-taking recounted how, early in the digital era, he had passed around to his friends a dummy version of a forthcoming book featuring his photographs of models posing somewhat perilously on the tops of buildings and bridges, at times in high winds. The reaction of those who saw it was to compliment him on being extremely adept, but with software—much to his chagrin no one would believe that either he or the models had been foolish enough to take the risks depicted.

Now when I sit on the New York City subway I no longer even imagine that the imagery refers to anything that exists. I think of the “photographs” not as referents but as “desirets.” Each image exists to make me want to find out something that is probably useless, to purchase the product described no matter how unnecessary, or to brand it so it will seem familiar each time I see the image or name again. There is no relationship for me, the viewer, with an actuality that exists independently of the intended transaction. There is not even any room to dream.

Sontag admonished: “To photograph is to appropriate the thing photographed. It means putting oneself into a certain relation to the world that feels like knowledge—and, therefore, like power.” In the digital realm, where each image is a malleable mosaic, the distance is magnified. The photograph, no longer automatically a recording mechanism, is not as able to “appropriate the thing photographed” as much as to simulate it. In the age of image, the relation to the world it offers may not be knowledge or power but something like conceit.

What is appropriated is often someone else’s photograph, one of several post-modern strategies to which the digital lends itself. Numerous photographers have become embroiled over disputes not only when others use their photographs without permission but also when they change them. For example, Susan Meiselas, who covered the Nicaraguan revolution nearly thirty years ago, was trying to protect the historical contextualization of one of her photo-

graphs that has become iconic—a man throwing a Molotov cocktail—after she found that a painter, Joy Garnett, had used the image as the basis for one of her own works in a series entitled “Riot.” (Garnett defines herself as a painter for whom “all of my paintings are based on photographs” that she finds, many on the Internet.)

Feeling that Meiselas should not be able to exercise proprietary control over the uses of her own photograph, Garnett went public with the conflict on the Internet. Many sided with Garnett in what was soon called “Joywar,” putting up mirror sites to support her in case her own site would be shut down, as well as creating and publishing even more derivative imagery. Meiselas, who has long found it difficult to establish a point of view in mainstream media, was marginalized again, this time judged to be too controlling and old school by denizens of the Web.

They appeared together to publicly discuss the issue, and then published their remarks in *Harper’s* magazine. Garnett, who is also arts editor of the journal *Cultural Politics*, cited provocative questions raised by Internet posts: “Does the author of a documentary photograph—a document whose mission is, in part, to provide the public with a record of events of social and historical value—have the right to control the content of this document for all time? Should artists be allowed to decide who can comment on their work and how? Can copyright law, as it stands, function in any way except as a gag order?”

Meiselas responded by warning that “technology allows us to do many things, but that does not mean we must do them. Indeed, it seems to me that if history is working against context, then we must, as artists, work all the harder to reclaim that context. We owe this debt of specificity not just to one another but to our subjects, with whom we have an implicit contract.” The author, who risked her life to witness the Sandinista revolution (not “riot,” as Garnett contextualized it), found that all she could do, in the age of mass appropriation, was plead her case. Garnett did promise to credit the photo along with her painting.

“If God died in the nineteenth century, according to Nietzsche,” wrote Paul Virilio, “what is the bet that the victim of the twentieth century will not turn out to be the *creator*, the author, this heresy of the historical materialism of this century of the machines?” In fact, what happened to

Meiselas's photograph has happened to countless others. The "content provider" is often just that.

Some of the most historically significant photographs are being remade by artists who reconfigure the images or place themselves within them. Polish artist Zbigniew Libera, for example, has taken well-known images of suffering, such as of a concentration camp, the Vietnamese girl fleeing from a napalm attack, or the death of Che Guevara, and modified them to show smiling prisoners behind barbed wire, a nude Caucasian woman smiling near a man in a hang-glider suit, or an apparently resurrected Che rising from his deathbed. History becomes fluid, with a happier ending just around the corner. In his 1994 series of forty manipulated images that he calls "Man Without Qualities," Matthias Wähner, a German artist, inserted himself into famous photographs such as that of President John F. Kennedy in a motorcade or, again, the young girl fleeing a napalm attack on a Vietnamese road. The past is revised and questioned, and some of history's iconic images are made to seem silly.

Given the increasing manipulation of the past, Barthes's famous observation from another era now seems nostalgic, even hopeful: "One day, quite some time ago, I happened on a photograph of Napoleon's youngest brother, Jerome, taken in 1852. And I realized then, with an amazement I have not been able to lessen since: 'I am looking at eyes that looked at the Emperor.'"

Families are also revising their photographic histories, retouching albums, removing ex-spouses. Looking at these albums, children may have difficulty knowing who was actually present at their parents' wedding, or what their parents were wearing at their own. Why buy an expensive dress when an "image stylist" can add it to the photograph later? One commercial service, by selecting from a variety of photographs, promises group portraits in which "We combine the best expressions into a single 'perfect portrait.'"

Increasingly, much of the photographic process will occur after the shutter is released. The photograph becomes the initial research, an image draft, as vulnerable to modification as it has always been to recontextualization.

In recognition of the new characteristics of digital media, the concept of copyright has already become more nuanced (and perhaps more realistic) with the new licensing system Creative Commons. As the non-profits

Web site suggests, "You can use CC to change your copyright terms from 'All Rights Reserved' to 'Some Rights Reserved.'" Choices can be made by the initial author concerning whether the work should be copied, distributed, displayed, or performed with a specific credit, whether derivative works can be made from it, whether it can be used only non-commercially, and so on. In the fluid digital environment copyright may be for some too static and all-inclusive a concept.

There have been numerous recent high-profile cases where photographs have been changed. For example, a few years ago the *Los Angeles Times* fired photographer Brian Walski, who had composited two photographs from the war in Iraq to get what he thought was a better image. A foreground image of a British soldier from one frame was composited with the background of another, depicting seated Iraqi civilians. But he was given away by the repetition in the image of a few of the people in the background, although not until the work had been published in several newspapers. The *Times* then examined his previous photographs and, despite finding no evidence of any manipulation, quarantined them so that they could be republished only with approval from the senior photographic staff. Other news organizations have also recently fired photographers, as well as an editor, for the digital manipulation of photographs to make what the photographer considered to be a stronger point.

Walski's alteration, which was largely innocuous in the information it conveyed, can be argued to hardly have been as significant as those engaged in by photographers who, on a daily basis, legitimize the staging of yet another photo opportunity as an authentically occurring event. There is a generalized preference in news media to publish actual photographs of artificial events, rather than the other way around. In Walski's case it may have been particularly frightening that it was the unsupervised photographer in the field who was making the modifications.

There is considerable competition among photographers to make the most exciting photograph (if not the most exploratory one) so as to have it published back home. If readers do not see the photographs then what is the point of the photographer risking his or her life in battle or even doing the

Fonda Speaks To Vietnam Veterans At Anti-War Rally



Address And Anti-War Activist Jane Fonda Speaks to a crowd of Vietnam Veterans as Activist and former Vietnam Vet John Kerry (LFF) listens and prepares to speak next concerning the war in Vietnam (AP Photo)



FIG. 7: Both images were fabricated to discredit politicians: Massachusetts senator John Kerry falsely shown with Jane Fonda in a 2004 composite (top); Maryland's senator Millard Tydings similarly depicted in 1950 with Earl Browder, former head of the U.S. Communist Party.

job? David Rees, a University of Missouri journalism professor, suggested that one motivation for such alterations in today's image world might be that "movies are perfect, so we have this expectation that journalism should be perfect as well."

In the increasingly stylized press, concerned for its own survival, fearful of readers' sensibilities, competing with "reality" television and surrounded by a never-ending stream of well-groomed advertising, the raw, visceral, upsetting photographs are often refused and, partially as a result, never made. (After once publishing a group of war photographs in a magazine where I was on staff, I was admonished by the publication's advertising department for not having been helpful in creating "a good environment for advertising.") Photographers in pursuit of the authentic often find themselves using their own money, along with grants, to work on self-defined multiyear projects.

It is not, however, only the professionals who reconstruct imagery for the press. During the 2004 presidential campaign, an image of candidate John Kerry and one of actress Jane ("Hanoi Jane") Fonda were composited to make it appear that they once were together at an antiwar rally during the Vietnam War. Published on a conservative Web site, with a fake Associated Press credit, the image was made simply by downloading a photo of each from the Corbis photo agency site. The composite was then picked up and published by mainstream newspaper editors who, thinking it was an actual photograph, were now able, and sometimes all too eager, to picture Kerry's early radical leanings.

Similarly manipulated imagery playing on voters' suspicions and fears could significantly influence future elections, particularly if published in the days just before the voting. A 1950 composite of the former leader of the U.S. Communist Party, Earl Browder, meeting with Senator Millard E. Tydings of Maryland, circulated by the staff of the virulently anti-communist senator Joseph McCarthy, is thought to have been not only a factor contributing to Tydings's unsuccessful bid for reelection (he lost by 40,000 votes) but a warning to other politicians not to tangle with McCarthy. Even though it was labeled a photo-composite, few readers understood the term.

Another much more recent controversy over a possible photo-composite concerned a smiling U.S. Marine with two boys making a thumbs-up

gesture and holding a sign that read, "LCpl Boudreaux killed my dad, th(en) he knocked up my sister!" It provoked outrage, including protests by the Council on American-Islamic Relations, which asked for a Pentagon investigation. But another version read "LCpl Boudreaux saved my dad, th(en) he rescued my sister!" A third version on the Internet, with two other boys, read, "I'm safer in Iraq then [sic] with Michael Jackson!"

In 2004 an investigation was conducted by the commander of the U.S. Marine Forces Reserve. According to information received in 2007 through the Freedom of Information Act, "Several other versions of this photograph—with different quotes—surfaced on the internet following this initial photograph ["LCpl Boudreaux killed my dad..."]. After extensive analysis of these photographs by Federal authorities, however, there was insufficient evidence to conclusively show whether any of these photographs were 'original' or whether they actually contained the words alleged. In other words, investigators were unable to determine whether or not these photographs had been digitally altered." If the military could not figure it out, what hope is there for anyone else?

Perhaps the most interesting site that concerns itself with digital manipulations of photographs is an instructional Swedish Web site that shows the multiple alterations to lips, eyes, teeth, breasts, nose, waist, cheek shadows, jawline, facial creases, hips, hair, and clothing that typically occur to make an ordinarily attractive young woman slickly glossed for magazines. "How I Became Perfect" allows the reader to click on each physical feature and see the changes that were implemented to transform her image for commercial consumption. The viewer, for example, can find out about her eyes and brows: "The whites of the eyes are made as white as chalk, and the irises are given a bright blue colour. The eyebrows are moved higher up and made less straggly. The eyelashes are lengthened and the entire photo is given a lighter, softer glow." (This is reminiscent of Richard Avedon's analog retouching of pinkish tear ducts, removing them in order to whiten his models' eyes.) By imparting a modicum of media literacy, the site may allay the insecurities of some readers.

Many of these modifications of the photograph were the inventions of large corporations, thought of as authoritative. Some, like the Walski composite and the fake Kerry-Fonda image, were created by individuals, both

professional and amateur. The actual photograph, for a variety of reasons, had been judged insufficient for their purposes. Each had to be manipulated or, according to the more positive spin, "enhanced."

There have also been frauds published in scientific journals—slight changes in the look of a cell, for example—that have been difficult or impossible to detect. At the *Journal of Cell Biology*, 1 percent of the submissions recently were judged fraudulent. Editors now routinely use Photoshop software to search for compositing or other changes—a part of the image that has been doubled; an extraneous line indicating that a segment comes from another image. It is not a foolproof method but it does catch some of the fakes.⁶

Dr. Hani Farid, an applied mathematician at Dartmouth College, has recently developed algorithms to analyze whether parts of an image have different illumination sources than the rest or to see if extra pixels have been generated by either enlarging sections or rotating them, as ways of finding photographs that have been altered. Interest in the new field of digital forensics, according to Farid, has come from editors at scientific journals, eBay customers, and the F.B.I., among others. Whether it will eventually prove practical to analyze the masses of images that circulate daily, or how difficult it will be to detect all the modifications, will take time to sort out.

It would be interesting to provide such software to interested readers, just as cashiers have machines to find fraudulent paper money. One could imagine bloggers—in the United States there are already twelve million—taking up an aggressive watchdog role as a public service. (The somewhat crude digital alterations by a Reuters freelance photographer in Lebanon during the 2006 conflict with Israel—he added smoke to one photo to increase the sense of devastation over Beirut and flares to an Israeli F-16 in another, which were miscaptioned as missiles—were uncovered by the blogging community.) The atmosphere, however, could degenerate into that of a witch-hunt, where accusations fly and every photograph is thought to be guilty until proven innocent.

While waiting for any technical watchdog to develop, the lack of universal, transparent standards in photojournalism, particularly in magazines, despite nearly twenty-five years' experience with such manipulations, is disconcerting. For example:

MAG RUNS DOCTORED PHOTO OF MARTHA STEWART
By THE ASSOCIATED PRESS

Published: March 2, 2005
Filed at 3:52 p.m. ET

NEW YORK (AP) — Martha Stewart, who is about to get out of prison, seems to have undergone a makeover on the cover of the latest *Newsweek*. Stewart's face was placed on someone else's body for the cover story "Martha's Last Laugh," making the 63-year-old look terrific after five months behind bars.

Editors at *Newsweek* said there was nothing wrong with the "photo illustration," which was identified as such inside the magazine.

"Anybody who knows the story and is familiar with Martha's current situation would know this particular picture" was an illustration and not a photograph, said assistant managing editor Lynn Staley.

Photo illustrations are a fairly common practice.

Newsweek's cover headline read: "Martha's Last Laugh: After Prison, She's Thinner, Healthier & Ready for Prime Time." Celebrity images have often been retouched, but now it's possible to "borrow" someone else's body to make the point. Why diet or exercise?

If one is rich and powerful, in the world of image it can be a sign of prestige to be given someone else's body. (It is reminiscent of Neal Stephenson's novel *Snow Crash*, where in the "metaverse," now cyberspace, the poorer denizens have black-and-white avatars while the richer get color.) But considering that such image manipulations frequently happen to women, the motivations can simply be misogynistic. Body replacement happened to Oprah Winfrey on the cover of the mainstream *TV Guide* (Ann-Margret's body) and to Hillary Clinton on the cover of the much more provocative *Spy* magazine (shown as if a dominatrix in leather and chains). Rosanna Arquette had her T-shirt adorned with the *Playboy* bunny logo on that magazine's cover without her permission, while she disagreed with the company's philosophy.

More recently, in 2006 CBS television news anchor Katie Couric lost a virtual twenty pounds or so in a slimmed-down image that the network published in one of its magazines (some digital cameras now offer a similar slimming function that can be used as one takes portraits). Daryl Hannah not only lost weight, she lost her body in a composited photograph on the

cover of *Spy* that dressed her in a Jackie O-style pillbox hat and suit (similar to the one the president's wife had worn on the day he was assassinated) and had her sporting someone else's bare midriff, while the magazine posed the provocative question, "The next Mrs. John F. Kennedy Jr.?"

Some time after I published a long article in the *New York Times Magazine* on the coming digital revolution in photography and film in 1984,⁷ a senior editor told me that I was prohibited from writing again on issues of new technologies. Why? Because according to their calculation this article turned out to be four years prescient and the editors deemed it unfair to force the reader to contemplate anything more than six months into the future. Now, almost a quarter-century later, we are only beginning to grapple with many of the implications of the digital revolution.

The alteration of the phenotype, modifying body parts and exchanging them among the people depicted, is symptomatic of the transition from a focus on the visible human, illuminated by the play of light and shadow, to experimenting with his coded being, or DNA. These media strategies begin to acknowledge the evolution of humanity from sentient beings to social signifiers. Once conceived of as the embodiment of thought and feeling, people are now assigned, through the lens of mass media, to global importance as information and image.

The widespread use in affluent societies of graphic software, video games, camera phones, and digital cameras has accelerated playing with code-based images—synthetic football players, computer-generated characters in films, composited portraits—as a prelude to modifying code-based humans. In a recent *New York Times* column, David Brooks wrote: "A Harris poll suggested that more than 40 percent of Americans would use genetic engineering to upgrade their children mentally and physically. If you get social acceptance at that level, then everybody has to do it or their kids will be left behind." More specifically, "British couples can create babies through in vitro fertilization to help cure sick siblings, Britain's highest appeal court ruled Thursday, rejecting a challenge from an anti-abortion group. The Law Lords backed a 2003 Court of Appeal ruling that some couples undergoing the fertility treatment could have their embryos screened to find tissue

matches for seriously ill children.”

Not only are bytes, unlike chemistry and film, not palpably physical but they become insistent metaphors for a depiction of reality as informational. While photography is conventionally thought of as depicting the present to be seen as the past, we have also, unbeknownst to ourselves, been making coded images of the future—our own as transformed humans, or what some are calling, with justification, “post-humans.”

Our genotypes will soon be viewed as part of our résumé, perhaps preventing us from getting certain jobs, health insurance, or even being accepted in marriage. For one thousand dollars by mail, an individual's genome can now be charted and analyzed, including proclivities for diseases. Much of the staff of *Vanity Fair* took DNA tests for a special issue on Africa to chart their ancestral pool; results were published on the masthead. The “replicant” in *Blade Runner*, assured of her humanity by the snapshots she possessed of herself as a child, was doubly deceived: the photos were manipulated, as was she. Her situation begins to forecast our own in the age of the digital photograph and the cyborg.

In the interim, digital photography will shower us with photographs of chimeras, creating a menu of possibilities for change, some helpful and others as psychically destructive as the cold cookie-cutter imagery that has already tyrannized the susceptible on nearly every magazine cover featuring a young, thin, and heavily retouched woman. In an age where twins have already been born seven years apart due to frozen embryos stored by fertility clinics, it will not be enough to just focus on appearances. Image-portraits will undoubtedly be made that reflect the kinds of chromosomes we each possess, using new strategies to make not only our bodies but also our genotypes visually explicit. Dating services might provide images that approximate the look of children who could result from their suggestions for partners, while simultaneously making potential couples anxious as to the health risks of their having a family together based on the combinations of their DNA. Realistic-looking imagery of imagined species, coming from an eventual genetic image generator, will suggest the possibilities of merging into more hybrid beings ourselves, just as artists have long been doing in a more intuitive way.

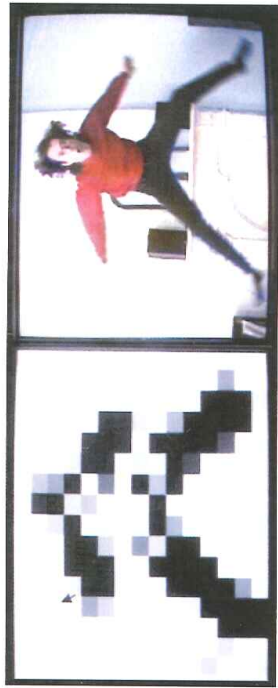
Some of these virtual experiments have begun, including the extraordinary synthetic multiplayer world of *Spore*, created by Will Wright, where

people will be able to choose body parts to create their own creatures. More prosaically, there is also a Miss Digital World competition—Ilana, one of the entries in 2004, was described as having been born in São Paulo, being 5'11", and having “velvety” skin and a polygon count of 195,000. Meanwhile, there is also the new field of synthetic biology, a real life experiment, where engineers go beyond tinkering with one or two genes and try to rewrite the genetic circuitry of living organisms, even the entire genetic code. One strategy already being pursued is the modification of microbes so as to generate inexpensive petroleum out of plant waste, and there is discussion about eventually designing whole organisms from scratch. Given the possibilities for massive, wholesale change as to the character and quality of life, there should be much for digital photography to visualize and address.

And just as there are extensive similarities among the DNA of humans and other organisms, so too in the digital environment the various media can share code and be output as hybrids or as each other. I remember a Mondrian painting output as music by Kevin Walker, at the time a New York University graduate student, who worked out a system allowing the viewer to “play” the colored geometric objects in the jazz-influenced painter's imagery. One can imagine the “tones” of music and of image commingling as code, and then output as either one, or as a different medium entirely. Jaron Lanier, the virtual reality pioneer, envisioned playing an organ so that the musical tones translate into a virtual castle that one could then inhabit.

Ansel Adams, the great photographer, began as a classical pianist. When I asked him why he had been using, at that time, Polaroid film with its short tonal range as opposed to conventional film, he remarked that the harpsichord has a more limited number of tones than a piano but still makes beautiful music. His “Zone System” in photography, organizing tones from black to white in steps as one would organize sound on a piano keyboard, was influential in determining a conceptual architecture of the photograph. It also predicts, in a sense, the discrete integer-based tonalities of the digital.

Then there is artist David Rokeby, who in the late 1980s came up with his *Very Nervous System* (so many of the more innovative works began at the cusp of the digital revolution, before many of its features became pervasive enough to seem routine). The protagonist moves his or her body in space and the cameras “see” it, translating the image into data and then outputting



it as music that causes the protagonist to again move his body, almost as if dancing, so as to produce more music (or sound). Movements are analyzed “dynamically and historically,” so it may be that one kind of movement will not cause a similar sound to be produced (therefore making it unlike a piano). The camera, inputting the visual, ends up by making a kind of music. To Rokeby, the state produced is “almost shamanistic,” so that “after 15 minutes in the installation people often feel an afterimage of the experience, feeling directly involved in the random actions of the street.”

Imagine, then, filming a demonstration and bringing it home as a musical recording based upon what the camera saw. How would it be to evaluate the intensity and success of a demonstration by the sounds produced from imagery? Or, as students at NYU attempted, asking a dancer to create her own music from within the system. In this case the dancer found that her movements became contorted as she attempted to get the right sound; she was used to dancing to the music, not creating it as she danced. The students achieved a more serendipitous result aiming a camera at the street below and having the taxis, bicyclists, pedestrians unknowingly create, à la John Cage, a kind of music, or what one might call a “sound photograph,” one of many eventual kinds of “writing with light.”

These “accidents” become a continuation of one of photography’s strongest suits—its ability to see in ways that humans cannot, and to find emerging rhythms of life that people may sense but cannot focus upon. As such, these results serve as a partial antidote to the medium’s servile function as both illustration and “proof” of preexisting points of view. Here the human has less control over the photographic process and is surprised by it.

FIG. 8: Visuals are translated into sound in David Rokeby’s “Very Nervous System.”

As Garry Winogrand used to say, “I photograph to see what things look like when they are photographed.”

As in the sciences, the very act of observing can fundamentally change an outcome, and so can also fundamentally change us. Inventing new media, whether eyeglasses or computers or digital cameras, to better explore the world has the unintended consequence of rendering that world in which the inventions were made passé. The new inventions allow, and ultimately force, the world in which they were invented to change. And the planet that these media were meant to explore is no longer the same for the very simple reason that these media observe it.

Media create for us a different world and, as a result, we require evolving media. “Our fine arts were developed, their types and uses were established, in times very different from the present, by then whose power of action upon things was insignificant in comparison with ours,” poet and essayist Paul Valéry wrote in 1931. “But the amazing growth of our techniques, the adaptability and precision they have attained, the ideas and habits they are creating, make it a certainty that profound changes are impending in the ancient craft of the Beautiful. . . . For the last twenty years neither matter nor space nor time has been what it was from time immemorial.”

Like the arts, news media also fundamentally shape the world that they are made out to represent—and may even replace it. As many theorists have explained (“the medium is the message”) watching the war in Iraq on television is, in large measure, watching television, not the war. A televised war requires different strategies—simplified ideologies, a visually coherent narrative, a telegenic president, horror viewed as spectacle—than does one reported in print with its closer adherence to cause and effect. A “permanent war on terror” transcends the limitations of a book but is exemplary as an anxiety-producing drama to fill many television seasons and sell untold billions of dollars’ worth of reassuring and diverting advertising. The attacks on September 11 kicked off the series; few seem intent on ending it. As a televised drama it serves its purpose well.

Photography is generally perceived as resolving ambiguities (for example, that when a horse gallops there is a moment when all four feet are off the ground, as Eadweard Muybridge’s photographs famously demonstrated in 1878) rather than promoting them. Yet it can also become a filter



FIG. 9: Snuppy, on the right, is an identical twin of an adult male Afghan hound. He was born to a surrogate mother, herself a Labrador retriever. Photo by Hwang Woo Suk/Seoul National University/AP.

that, in combination with its accompanying caption, attempts to collapse overlapping realities, often unfairly, into a singular state. Knowing that a horse gallops with all four legs off the ground at one time means that we live in a world that is less mysterious, less intuitive, in which the camera, not people, becomes the arbiter. Using the camera only to provide answers and not questions is to underestimate what the camera can do.

Over a century later, as one of the founders of *Doctors Without Borders* put it, “Without photography, massacres would not exist.” Otherwise, no one, especially politicians, would pay attention. A human eyewitness’s account lacks the perceived objectivity and portability of the photograph. As a result, massacre survivors are victimized twice, by subjective, hating people and by the so-called objective machine trumping their viability as witnesses to their own victimization. And if one day people believe neither the validation of the photograph nor the eyewitness testimony, then we will live self-absorbed in a world where there are no massacres, at least no credible ones.

A superficial irony in this information age is that so many of these massive changes go unnoticed as the staggering overload of information makes them all that much harder to detect; the tragedy is that so many of these are fundamental transformations that are difficult if not impossible to undo. For example, as Bill McKibben recently wrote in *Enough*, once we start modifying the gene pool we have caused revolutionary change that cannot be undone (as has already happened in the genetic modification of food sources; much the same can be said of the planet’s climate). Once genetic manipulation begins in humans, what will be done with those whose genes have been modified— forbid them from having children? Will their children still be considered “natural,” or humans with an asterix? Will it be a version of the post-human who wins the races, comes up with the new theorems, and leads the planet? Will the unmanipulated humans then be labeled organic, as we now call certain foods? Or, as the cyberpunk novelist William Gibson has asked, are we not already beginning to approximate a cyborg once we have had the first synthetic vaccine injected, as nearly all of us have had?

Among the many consequences of this malleable gene pool most certainly will be the pursuit of image, with a concomitant loss of perspective: “In a world in which everyone is smart, good-looking and pleasant, everyone will be fit to perform in hit movies, but no one will be fit to review them,” wrote David Brooks in the *New York Times*.



It is a potentially calamitous pursuit. Did the millions of romanticized and appropriately beautiful images of nature that serve as an image archive, on calendars, in textbooks and magazines, on the Internet and elsewhere, help us to ignore the realities of environmental destruction? Might this proliferation of celebratory imagery turn out to be a facade that has served to disconnect us from the disappearance of the natural? We can always make more images, since in the digital realm they can be synthesized ad infinitum whether or not the putative subject continues to exist.

In our acquisitive mode, it may be fool's gold that we have attained. Transforming the world into photographic currency substitutes a "sense of the universal equality of things," wrote Walter Benjamin in the 1930s. He argued "Every day the urge grows stronger to get hold of an object at very close range by way of its likeness, its reproduction." But, Benjamin continued, "reproduction as offered by picture magazines and newsreels differs from the image seen by the unarmored eye. Uniqueness and permanence are as closely linked in the latter as are transitory and reproducibility in the former. To pry an object from its shell, to destroy its aura, is the mark of a perception whose

'sense of the universal equality of things' has increased to such a degree that it extracts it even from a unique object by means of reproduction." The more than three billion photographs that Photobucket claims are available online at the user-generated site, or the more than three billion video clips that market research firms say are served up monthly on YouTube, are more than able, by sheer volume alone, to "pry an object from its shell," as well as eliminate any aura of the original or a sense of uniqueness.

In a university classroom I often ask students if there is anything in the room, other than the students themselves, which is one-of-a-kind and not mass-produced; we can usually count many dozens of rectangular shapes—desks, computers, books, pads, blackboard, screens, windows, doors, etc.—yet we rarely ever come up with more than one or two custom-designed pieces of jewelry as the only unique objects in the room. It is often the first time the students realize that for much of their lives they are surrounded almost exclusively by the non-original, which many find reassuring. After all, who wants a one-of-a-kind car, and who does not want to bond in the consumerist ethos of nearly infinite replication?

Photography itself is, in this context, an appropriately shaped medium with which to communicate. The plethora of rectangular photographic images that reinforce the generic and mass reproduced as a means to consumer acceptance diminishes our sense of the possible and the sublime. They insidiously and casually substitute easily reproducible image-friendly paradigms—the synthetic human, the paradise-like environment—for the rawness of existence. Accustomed to relying on the photograph as trace, we hardly know (or want to know) to what extent and how quickly we are leading ourselves down such an essentially compromised path.

In the digital image world the universal equality of things also lends itself to easy categorization under the most banal keywords in the ever-growing archives of o's and i's. The photograph, no longer visible on paper or film, generally requires that keywords be assigned in order for the image to be quickly retrieved—an experience quite different than perusing prints. By assigning keywords, the ambiguity of the photograph is often arbitrarily concretized, the photograph's multiple meanings denied, reifying the challenging mysteriousness of existence that the photograph can sometimes evoke. "Sunsets" and "babies" become keywords that belie any remaining

FIG. 10: My Twinn is a company that promises, upon receiving the appropriate digital photographs, to make a "just-like-me doll created to look like the special child in your life."

complexity in the image; “sexy” is a keyword that is frequently assigned as a play in search of a larger audience, a form of consumer branding. As of now there is very little sense of play in keywording, of a poetic dissonance between the word and the image.

Eventually the assigning of keywords will become more subtle, and other strategies will be widely employed to find a digital photograph—geo-tagging, matching image algorithms, various ways of linking from other images and image fragments, etc. A more intuitive associative retrieval system, like Vannevar Bush’s visionary memex (“a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory.”), first broadly outlined in the July 1945 issue of *Atlantic Monthly*, would be particularly helpful if it could treat photographs in the digital environment with more subtlety as neither generic nor confined by the information in their captions.

Meanwhile, photographic prints are sold for booming prices at auctions from what is beginning to resemble a photographic graveyard. Earlier this decade the *New York Times* reported that some 98 percent of the Bettmann photographic archive, personally owned by Bill Gates, was taken from its file cabinets in Manhattan and buried in a refrigerated Pennsylvania limestone mine for safekeeping, as the prints were deteriorating. Only the more commercially popular images from among the 17 million going into storage had been digitized (it was said to be too expensive to scan all the rest) and would remain generally available. The collection, a great paper-based idiosyncratic cultural legacy containing some of the most riveting news and documentary photographs of the twentieth century—which grew from a cache of photographs brought to the United States in 1935 by Otto Bettmann during the Nazis’ rise to power—was rendered much less accessible. A readily salable version of history—Einstein sticking out his tongue, for example—was kept in circulation as a digital file. Prints become the collector’s domain; for reproduction in today’s media, digital files are generally preferred.

The moldering photographs, palpable testimony to time’s passing, are refrigerated and remote. The original photograph, its presence in time and space, yellowing and with all the markings on the back, is disallowed.

The mechanically reproduced photograph attains a new status as a scarce and at times unique object, with a preciousness more like a painting: one of only three known prints of Edward Steichen’s *The Pond-Moonlight*, sold in 2006 for \$2.9 million. The scanned and smoothed digital images enter an eternal present in which they are distributable over wires and through the air, ephemeral, omnipresent, never decaying, gratuitously bestowing a facile attempt at immortality.

Certainly, the aging of the digital photograph is not the same as a software engineer’s offer to program a paper-like “browning” according to the computer’s clock. The digital, as we shall see, offers a much more dynamic version of time than that.

And why not? Even one of the great constants, the speed of light, has changed. In 1999, on the cusp of the millennium, this article, “Physicists Slow Speed of Light,” appeared in the *Harvard University Gazette*:

Light, which normally travels the 240,000 miles from the Moon to Earth in less than two seconds, has been slowed to the speed of a minivan in rush-hour traffic—38 miles an hour.

An entirely new state of matter, first observed four years ago, has made this possible. When atoms become packed super-closely together at super-low temperatures and super-high vacuum, they lose their identity as individual particles and act like a single super-atom with characteristics similar to a laser.

Such an exotic medium can be engineered to slow a light beam

20 million-fold from 186,282 miles a second to a pokey 38 miles an hour. “In this odd state of matter, light takes on a more human dimension; you can almost touch it,” says Lene Hau, a Harvard University physicist.

In the past few years speeds have been slowed down even more. “In a quantum mechanical sleight of hand,” the *New York Times* reported in 2007, “Harvard physicists have shown that they can not only bring a pulse of light, the fleetest of nature’s particles, to a complete halt, but also resuscitate the light at a different location and let it continue on its way.”

The word “photography,” coming from the Greek, means writing or drawing with light. If the light changes the writing should as well.