Pamphlets, paintings and programs: Faithful reproduction and untidy generativity in the physical and digital domains.

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Several years ago I was writing a paper about the plagues of the 13th and 16th centuries. My research brought me to the Beinecke Rare Book Library, where I was able (once I'd handed over all my possessions other than a pencil and notepad, and under a guard's watchful glare) to read – and hold – actual pamphlets

The crumbling yellowed pamphlet in my hands had existed during the plague of which it spoke. It had been carried through the same streets that the corpses of plague victims passed, it may have accompanied its owner on visits to the houses of sick and dying plague victims, perhaps the owner himself had fallen victim.

> "Moreover receyve not into your house any stuffe, that commeth out of a house, wherin any person hath ben infected. For it hath bene sene, that such stuffe lyenge in a cofer shutte by the space of two yeres, after that the coffer hath bene opened, they whiche have stande nygh to it, have ben infected, and sone after have died."
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> - Sir Thomas Elyot *Castel of helthe* (1539) [quoted in (Healy 1993)]

On the one hand, I knew the pamphlet was quite safe. Yet it was itself "stuffe": carrying with it, while not *Yersinia pestis* itself, some ineluctable essence of its passage through the plague years.

A physical object's passage through history gives it a biography (Kopytoff 1986). This is not just an ephemeral narrative, but as if it has picked up some traces, some rubbings, from the people and events it has passed through. We see this in the in the high value given to an object that has been worn or touched by a famous person, from the Shroud of Turin to the ruby slippers worn by Judy Garland (2001). Even mundane objects can thus acquire talismanic power, deriving significance from the events through which they pass.

Time creates identity. The acquisition of history turns mass produced objects into individuals. But, as Latour and Lowe point out, this creates tension when the object, e.g. a beautiful artwork, has great intrinsic value. The two identities can be at odds. For the restorer, the key question is which the real or significant one is: the painter's initial creation, in which case all later marks should be eradicated, or the subsequently worn, torn, historical, biographical object, in which case the marks are themselves significant and valuable.

Not all historical interventions are of equal value. Last month, the Gatorade-stained shirt worn by the coach when the Celtics won the NBA championship was sold for $55,000.

Those stains added value, but any subsequent stains by other owners will detract. The economics of relics is a complex interplay between intrinsic value and historical significance.

This tension, between process and product and between the physical and the visible, can exist in the very creation of an object. This was made explicit in the 1950s with the emergence of action painting. The critic Harold Rosenberg said:

> "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, redesign, analyse or 'express' an object, actual or imagined. What was to go on the canvas was not a picture but an event. The painter no longer approached his easel with an image in his mind; he went up to it with material in his hand to do something to that other piece of material in front of him. The image would be the result of this encounter."
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> - Harold Rosenberg , "The American Action Painters" (Rosenberg 1952)

The action painting, as described by Rosenberg, is a side-effect of activity. Thus it is absurd to copy its appearance, its surface properties, by some accurate but different process. To copy traditional painting, as posited at the other end of the spectrum, with the finished work as the primary objective, makes more sense. Yet in reality there is not a clear dichotomy between traditional and action painting. We value the works of the Renaissance not only for their surface appearance, but also for the person and the process that produced them.

These issues are of interest far beyond the rather rarefied realm of art conservation. We are entering an era in which increasing amounts of our information, entertainment and everyday communication come to us in digital form, a form that can be impervious to wear and use, a form that allows for endless, seamless, reproduction. It is acutely important that we deepen our understanding of the meaning of physicality and attempt to untangle our ambivalent relationship with the marks, scars, stains and reminders of history.

In the digital realm, the easiest form of copying is perfectly accurate, bit by bit, pixel by pixel. We can make infinite numbers of identical documents. And these digital artifacts show no signs of wear. The webpage that has been viewed a million times remains pristine.

Yet the digital world is fabulously malleable. Perfection in copying is a design decision, as is the invisibility of history. And thus, the opposite can be made: I can design a system in which copying causes minute transformations, one in which viewing leaves traces (Hill et al. 1992; Wexelblat & Maes 1999) one that changes, mutates, evolves, or decays with time or with each glance or passing event.

There is certainly value in doing this. Seeing the paths that others have followed in reading a book or making subsequent generations of an object different than the initial ones can bring an organic complexity to the often sterile digital space. It engenders objects that create their own context, that exist in a continuum of becoming through use.

These traces need not, and should not, slavishly follow the metaphor of wear and tear, of footprints and paths. While the 9th generation of a photocopy is faded and smudged, the 9th generation of a digital object can be made to have picked up interesting data from the time and place of each act of copying. Synthesized imperfection can be made to perfectly suit your needs.

And that is perhaps its fundamental flaw. There is a certain antiseptic feeling to these vetted interventions. They are approved imperfections, nothing like the faint (and by now, imaginary) yet vivid traces of germs in the plague pamphlets, the oils and dirt and bits of shed skin that go with passing through the hands of another. What is the essence of that physical aura? Is it the tiny bits of stuff left behind? Or is it the uncontrollability that gives it value?

Some of the physical world's unpredictability can be replicated in the digital. We can make objects that are generated from complex, unrepeatable inputs, that grow and change in response to the outsides world. But would we choose to do this? Today, I think many would say no. The sterile cleanness of the digital is refreshing, simple. Those who feel that this is in some way a loss need to find ways to articulate the value of accumulating history, of choosing the chaotic and accumulative. It is with such changes and permutations that objects acquire their significance.

Latour and Lowe also emphasize the importance of how a work shapes the future, whether its trajectory is "fertile" or "barren". They start by discussing the creative fertility of performance, where a play written centuries ago can still generate new interpretations. They then argue that copies of paintings and other static artworks are analogously "fecund". The flaw in this argument is that the interpretations of plays bring new creative material to the production; they are not unchanging performances of the exact same actions, or faithful reproductions of the exact same canvas. A better analogy in the world of painting would be to the influence one artist has on another; it is Picasso's influence on artists such as de Kooning, Pollack and Lichtenstein (FitzGerald 2006) that is important, not the reproductions, no matter how nicely crafted, of his work (though those may be an important channel for enabling that influence).

In the digital realm, this distinction between clone-like copying and creative regeneration can be reified in the design of new media. It is the ability to modify, as well as to copy, that has brought about much of the richness and of the digital world today, what the legal scholar Jonathan Zittrain calls "the generative internet" (Zittrain 2006). Modification, aka mutation, is essential to evolutionary progress. A medium (and a legal environment) that makes it easy to make and modify copies encourages a cumulative creativity.

Mutations are not, of course, always beneficial. Most are not. Yet the richness of life comes from a myriad of accidental yet advantageous mutations – at the cost of the many

that failed. As we enter the digital era, we are able to program the level of risk we are willing to take with unexpected changes. We can create a sterile, synthetic world, safe, but somewhat barren. Or we can create worlds that are much more open, messier, and more "organic" – how far we want to go in this direction remains an open question. The richness of the physical world encompasses both its great beauty and its plagues.

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