Thinkings:
How Computers Change the Way We See
By Altering the Way We Think

The Automation of the Image

The first question must be, "What is an image?" Vilém Flusser in his (1983) *Towards a philosophy of Photography* provides a usefully abstract definition:

> **Images are significant surfaces.** Images signify something 'out there' in space and time that they have to make comprehensible to us as abstractions (as reductions of the four dimensions of space and time to the two surface dimensions). This specific ability to abstract surfaces out of space and time and to project them back into space and time is what is known as 'imagination'. It is the precondition for the production and decoding of images. (8)

While the word image is an old one in English (a 14th Century coinage based on the Latin *imago* according to the OED), Flusser's definition uses a very abstract sense of it's meaning. It is not just abstract, it is all encompassing. It moves away from image as a mental construct and towards its description as a physical artifact that is ambiguous as to origin: it might be a painting, a photograph, or a computer simulation; it might represent a person, or an internal organ, a country, or a country road—that doesn't really matter. Flusser moves the definition even beyond the sense of being a material object and towards its being merely information; by focusing on surface and signification image, as a concept, announces its transcendence of its substrate, of "media".

The contemporary term image assimilates to itself all previous varieties of images and renders them equivalent. The advent of photography, the technical image, performs the first consolidation of image, absorbing into itself all prior image technologies and massifying their distribution. Computation reiterates this gesture, *McLuhanesque*ly assimilating all previous media to itself (McLuhan famously asserted that the content of all media are other media). So images now circulate and signify as these abstract and "significant surfaces"; and, thinking about image in this way facilitates and allows the virtualization of image in the computing machine.

The contemporary transformation of image—the change from chemical photography to digital photography, occurring in our lifetime and now nearly complete—is a total reformation of the ontology of the image. The mode of an image's being is completely different as a digital image as compared to a chemical one with implications for production, storage, and distribution as well as significance. Lev Manovich documents this ontological shift in his Language of New Media, where he observes that the new media object is assimilated to the ontology of computation. The principals he proposes for this new status follow directly from the computational ontology: numerical representation, modularity, automation, variability, and transcoding. At the heart of the digital are the quanta, the sets of discrete numbers that are made to represent computational objects, and that allow the computer to store, transmit and operate on these objects. Images which originate in the world are digitized in a process of reduction and abstraction that samples and encodes the real in order to represent it in the machine. But analogous image objects can be produced virtually, in imitation of the real or through the animation of abstract principles within the machine. Properties like "resolution" are not just properties of the process of digitization, they are properties of the

storage of information sets within the computer that necessarily take up a finite amount of space in the machine.

When image is an object in the machine, it is manipulable as any other set of numeric quanta are: it can be subject to automated operations, transformed, decomposed into its constituent elements, combined, searched, filtered, etc. The image takes on a specific malleability that is characteristic of computational objects. But the pixelization of the image preceded the digital; chemical photographs are also composites of quanta: the photosensitive grains of the earlier technology also limited the informational resolution of the image. Since these grains were fixed, however, the epistemological consequences were different. The photograph functioned as a guarantor of truth value since it was understood that an indexical correspondence, point for point between the world and the image, was the result of the photographic process in which light reflecting off of objects impacted the photographic surface. Even though photo-manipulation was developed along side the technology of photography itself, this notion of fixity persists. In contrast, the manipulability of the digital image has a ubiquity, accessibility, and therefore obviousness that makes the image "dubative" according to the media theorist, Peter Lunendfeld.

If we take as axiomatic the assertion of Guy Debord that we live in a "society of the spectacle", that we are drowning in a sea of images where, "All that was once directly lived has become mere representation," and that, "The spectacle is not a collection of images; rather, it is a social relationship between people that is mediated by images," we have a hint of what may be at stake our current relation to image. Our culture, our art, our politics, and our science all take place within this media-matic soup of the spectacle, the image economy. So we must ask again what is an image, or rather, how does it function in our world? What does it do? And what does it do to us?

Vilém Flusser writes:

> Images are mediations between the world and human beings. Human beings 'ex-ist', i.e. the world is not immediately accessible to them and therefore images are needed to make it comprehensible. However, as soon as this happens, images come between the world and human beings. They are supposed to be maps but they turn into screens: Instead of representing the world, they obscure it until human beings' lives finally become a function of the images they create. Human beings cease to decode the images and instead project them, still encoded, into the world 'out there', which meanwhile itself becomes like an image—a context of the scenes, of states of things. (9-10)

Flusser's word for this reversal is "idolatry." In his schema of historical development, text succeeds image as an attempt to get to back to the world and address idolatry's mistakes. But text is a further abstraction of the image and explains image through a reduction to a single linear dimension. Textoloatry ensues: the analogous literalist hallucination in which text is mistaken for the world. Then there is the technical image: photography. It abstracts from text making it a third order abstraction: from the concrete world, to the traditional image, to text, to the technical image. Traditional images signified phenomena; technical images signify concepts: they are not windows on the world so much as they are illustrations of the scientific ideas that have been worked out within the language of texts. Again McLuhanesquely, "the medium is the message": though the photograph appears to show us the state of things in the world, what it signifies is the optical and chemical theories that are responsible for its production.

There is a curious bifurcation in the photograph wherein the intention of getting back to the real world is hijacked—instead of the truth of the world we get a thicker stack of mediation. Image translates text which translates image which translates world. Again we mistake mediation for immediacy.

But the consequence of the technical image is also a new form of culture that comes as a result of the possibilities for distribution inherent in the photographic medium. Photographs come to be carried on paper; on paper, they are cheap, easy to reproduce, and easy to distribute. Mass culture results from a kind of democratization that follows from these properties; before the technical image, a pulp and proletariat textual culture was born, also inexpensive and easily reproduced and distributed. For Flusser, the technical image was to serve as an antidote to the schisms produced between high and low culture by the introduction of mass texts: a code for the whole of society. Images would be true, beautiful, and good—equally valid in science, art, and politics. They would explain the incompressible to all.

Photography does become in some manner universal, but it does so through a kind of voracious acquisitiveness: "Nothing can resist the force of this current of technical images—there is no artistic, scientific or political activity which does not aspire to be photographed, filmed, videotaped. For there is a general desire to be endlessly remembered and endlessly repeatable." So photography provides an immense prosthetic memory, but it does not solve the crisis of culture and it does not address texolatry or idolatry. It merely presents everything as what Flusser terms "the state of things"—meaning a picture of the way things are *supposed* to be through the magic that projects the image back onto the world:

> It is not the significance that is real but the signifier, the information, the symbol, and this reversal of the vector of significance is characteristic of everything to do with apparatus and characteristic of the post-industrial world in general. (37)

Flusser's most important idea, especially for us as we try and understand the significance of a digital imaginary, is that with photography comes a new kind of entity: the apparatus:

> Apparatuses are black boxes that simulate thinking in the sense of a combinatory game using number-like symbols; at the same time, they mechanize this thinking in such a way that, in [the] future, human beings will become less and less competent to deal with it and have to rely more and more on apparatuses. Apparatuses are scientific black boxes that carry out this type of thinking better than human beings because they are better at playing (more quickly and with fewer errors) with number-like symbols. Even apparatuses that are not fully automated (those that need human beings as players and functionaries) play and function better than the human beings that operate them. (32)

Flusser sees the photographic camera as a prototype apparatus, not fully automated at first, but still governed by a set of **programs** that automatically produce images and begin the process of the "robotization of work" and the "liberation of human beings for play":

> The camera is programmed to produce photographs, and every photograph is a realization of the possibilities contained within the program of the camera. … With every (informative) photograph, the photographic program becomes poorer by one possibility while the photographic universe becomes richer by one

realization. Photographers endeavor to exhaust the photographic program by realizing all their possibilities. (26)

There are multiple programs at work in the scenario:

> One of them motivates the camera into taking pictures; the other one permits the photographer to play. Beyond these are the further programs—that of the photographic industry that programmed the camera; that of the industrial complex that programmed the photographic industry; that of the socio-economic system that programmed the industrial complex; and so on.

> Every Program functions as a function of a metaprogram and the programmers of a program are functionaries of this metaprogram. Consequently, no-one can own apparatuses in the sense that human beings program apparatuses for their own private purposes. Because apparatuses are not machines. (29)

Apparatuses are not machines in the sense that they are unlike those giants of industrialization that were so expensive they could only be owned by an elite capitalist class; those machines organized workers around themselves as variables to their constancy. In contrast, apparatuses are relatively cheap hardware hybridized and controlled by a hidden program that allows them to function through the game of manipulating the exterior settings in ignorance of the internal workings of the device.

The intention of the human functionary who operates the camera is distinct from the program which motivates the apparatus. The photographer wants to inform and also to immortalize themselves in memory. The camera can't be said to have intention directly, but its program functions to redirect human intention in the interest of its program's functions: to place its capabilities into the image; and, to distribute these images so that society forms a feedback loop with the camera enabling the camera to progressively develop. There is a tension between human intentionality and the program's aim, so that the photographer is challenged to subordinate the camera to human intention. "Every single photograph is the result, at one and the same time, of co-operation and of conflict between camera and photographer." This field of tension is the territory of photographic criticism since the photo can be considered to be decoded only when the ratios of conflict and co-operation have been established.

The photographer is focused on the camera, trying to discover and understand unrealized aspects of its program. "The world is purely a pretext for the realization of camera possibilities. … they [photographers] are in search of information." (26-27) The camera makes it easy to take the same photo again and again, but these images are redundant—they contain no information. Photographers pursue informative photos by discovering unexploited aspects of the program.

In Flusser's view, not everyone using a camera is a photographer:

> People taking snaps are distinguishable from photographers by the pleasure they take in the structural complexity of their plaything. Unlike photographers and chess-players they do not look for 'new moves', for information, for the improbable, but wish to make their functioning simpler and simpler by means of more and more perfect automation. Though impenetrable to them, the automaticity of the camera intoxicates them. (58)

People taking snaps have a fetishistic relationship to the technology; because they cannot see it for what it is, they become controlled by it. They are programmed by the camera to perform as its functionary:

> People taking snaps can now only see the world through the camera and in photographic categories. They are not 'in charge of' taking photographs, they are consumed by the greed of their camera, they have become an extension to the button of their camera. Their actions are automatic camera functions. (58)

Even as we are in an time of global-info-capital, we are still in some way in the photographic universe, subject to the camera's program. The invention of the camera was for Flusser, the point of transition between a culture based on a mechanical structure and one based on a cybernetic structure dominated by apparatuses and programs. We exist more fully within a post-industrial information culture than we did at the time when *Towards a Philosophy of Photography* was written. And our challenge to maintain some semblance of human intention in the face of the near total control of life by apparatuses is that much greater. To the degree that we must always suspect that desire itself is our cooperating response to the program of the apparatus, the identification of avenues of resistance requires something like a philosophy. Flusser locates a space for human intention in the practice of criticism and the practice of photography contra the apparatus. What is at stake is human freedom. The question of freedom was raised before in relation to the deterministic causality of a scientific universe. It is raised again in the context of the regime of the apparatus where the determination of programs channels human activity towards the generation of randomness in the service of the apparatus. We resist with ingenuity, with improbability, with contempt: "Freedom is the strategy of making chance and necessity subordinate to human intention. Freedom is playing against the camera."

 Now, our challenge is not just the camera, but the machine: the computer. To locate a space for human intention where image, though it has not lost any of its centrality or its domination of culture, has been subsumed into computation. Freedom will be playing against the computer. (Shades of Kasparov versus Deep Blue.)

Yet this doesn't quite make sense: the computer is not a specific apparatus the way a camera is, it is a universal machine: every and all potential apparatuses that can exist. But image in the machine is a soft camera that is contained, and maintained with finite, if dynamic rules governing its functioning, and beckoning its human users to perform its functionary requirements just as if it were "hard" like the thing it had been before. To play against *this* thing requires a different sort of practice, a step up the ladder of meta-programs from the program of the camera. In our situation, it is program or be programmed. The informative image is the one that reinvents the soft camera itself in some improbable form. To evoke human intention requires not use but creation.

> Photographers, it is true, do not work but they do do something: They create, process and store symbols. There have always been people who have done such things: writers, painters, composers, book-keepers, managers. … these people have produced … objects that have not been consumed but that have served as carriers of information … They were not an end but a means. Currently this sort of activity is being taken over by apparatuses. (25)

The apparatuses threaten to substitute their dumb automaticity for the human prerogative of agency.

McKenzie Wark's *A Hacker Manifesto* (2004) lays out a terminology and an agenda for a generalized approach to the situation of a new creative class within the reworked class hierarchies of a global info-capitalism. The hegemony of a Vectoralists class is maintained through the control of the means of distribution and the imposition of a regime of intellectual property. But value originates in the labors of the Hacker class:

> We are the are the hackers of abstraction. We produce new concepts, new perceptions, new sensations, hacked out of raw data. Whatever code we hack, be it programming language, poetic language, math or music, curves or colorings, we are the abstracters of new worlds. Whether we come to represent ourselves as researchers or authors, artists or biologists, chemists or musicians, philosophers or programmers, each of these subjectivities is but a fragment of a class still becoming, bit by bit, aware of itself as such. [002]

Wark's language echoes Flusser's concern with abstraction and difference in the play of the photographer in relation to the program of the apparatus: "To abstract is to express the virtuality of nature, to make known some instance of its possibilities, to actualize a relation out of infinite relationality, to manifest the manifold." [008]

For Wark, hacking is freedom, and hacking is futurity. The incessant repetition of the same that is the circulation and substitution of redundant forms within the hypertrophied machinery of global circuits of production/distribution/consumption threaten the end of history. While difference in the practice of hacking opens, through the virtual, to a universe of possibility. It is not just that intention is demonstrated in the act of differencing that constitutes the hack, the hack is futurity itself. Not futurity as form, but futurity as an assertion of histories continuation through the improbable actions of those that play against the machine: "The free and unlimited hacking of the new produces not just 'the' future, but an infinite possible array of futures, the future itself as virtuality. Every hack is an expression of the inexhaustible multiplicity of the future, of virtuality."