

Drawing without light

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Pokémon Snap loads on the Nintendo Wii console. The game's title music has the familiar sound of an SLR camera's shutter mixed into its cheerful melody, an audio hint at the game's theme and – perhaps – a ghostly echo of a passing technology. Its registration screen is a 'photographer card', reminiscent of a journalist's press credentials, but the player is positioned more as a tourist on safari than a jobbing photojournalist. We are transported around a 3D rendered island beach on a little train, our eyes drawn to the reticule, the focal point of the interface's first person view point.

"Press Z to aim, press A to shoot, zoom in with L" the game instructs us, "Try to take a lot of *Pokémon* pictures".

The *Pokémon* themselves leap from behind rocks and trees as we trundle along the tracks. One particular species, a Pidgey, saunters into view. Pressing Z and A, we trigger the shutter sound again and hope to have framed a successful photograph.



"How's the size?" the game asks itself at the end of the first level, "310 – hmm so-so." "How's the pose? 750" the automaton / critic continues. "How's the technique? OK! The *Pokémon* is in the middle of the frame!"

Hand-eye co-ordination is transcribed into a simulacrum of formal and aesthetic judgement, itself rendered numerically; centring the *Pokémon* doubles the score for that picture.

"Wow! There are other Pidgey in the picture. I'll give you an extra 20 points. Wonderful! Your work is impeccable. Keep up the good work!"

The mechanic of the game is almost identical to an on-rails arcade shooter with first-person perspective and crosshairs head-up display. The wariness of violent action in this videogame for younger children echoes Twentieth Century sensibilities in big-game hunting, and a similar shift from gun to camera. And as with the photo-safari, we might assume, the *Pokémon* hunter's challenge is to snap their subject from the front, lightning reactions in play before the animal or monster turns and flees.

The first level (or 'course') completed, we are presented with all our photos, displayed like a contact sheet. "I've shown that one to Prof. Oak, but is this better? Press z to compare,"

It would be easy to regard the shutter sound, a digital audio file ubiquitous now across digital photography in all its forms and modes of capture, as a mere trace, an aural ghost of its departed medium, technology, and technics. Photography, dominant in image-making for a hundred and fifty years, now lost in a digital maelstrom that has wiped away its mechanical and chemical apparatus of production and its material and affective presence as a printed object. From this perspective videogame photography might mark the medium's final disappearance, as these images remove its defining essence, light itself, the *photo-* of photography. Unlike digital cameras and cameraphones, the making of images in, and of, computer game worlds operates without key processes and phenomena that constitute the specificity of photography. The pictures we showed to Prof. Oak may be displayed as light and colour on the monitor screen, but are in effect a mere graphical output from a set of invisible and intangible software processes and variables. The simulated photograph is produced not by the fixing of light from the phenomenal world, whether that capture of light be chemical, electronic, or digital. Rather, it is a rendering of events from a virtual world that is sunless, a dark chamber, a true camera obscura. The sun never shines on Pidgey.

If the videogame photograph is indeed a ghost, then, like the shutter sound, it is energetic and prolific in its haunting. Numerous videogames offer their players opportunities for the production and collection of images displayed and understood as photographs. For some games, like *Pokémon Snap*, the production of photograph-like images is central to the gameplay, for others it is an add-on activity, an option for the completist or aesthetically minded. Some games do not offer a photographic feature yet something in the quality of their graphics, virtual landscapes or virtual camera stimulates in their players the desire for image capture through screen grabs.

But what is the nature of this simulation of photography? Perhaps is not even a ghost, but merely a metaphor, offering a familiar frame to activities and processes that are quite different to photography? This essay will argue that neither the gothic rhetoric of death and afterlife that attends new media, nor an unqualified application of the notion of remediation, are adequate for understanding the persistence and mutation of photographic media and aesthetics in the post-digital era. For other facets of photography, at least of photography as an everyday practice and experience, persist in videogames. The image that glows only with the electrons of the cathode ray tube or liquid crystal of the flat screen may still capture a *moment*, a frozen instant in the unfolding of a dynamic, kinetic environment. The virtual camera organizes the flux of digital data in time and as space, from as fixed a viewpoint as that established by the photographic lens and the camera obscura before it.

Though videogame worlds will be the focus, the essay makes suggestions for the theorisation and study of media technological change more generally.

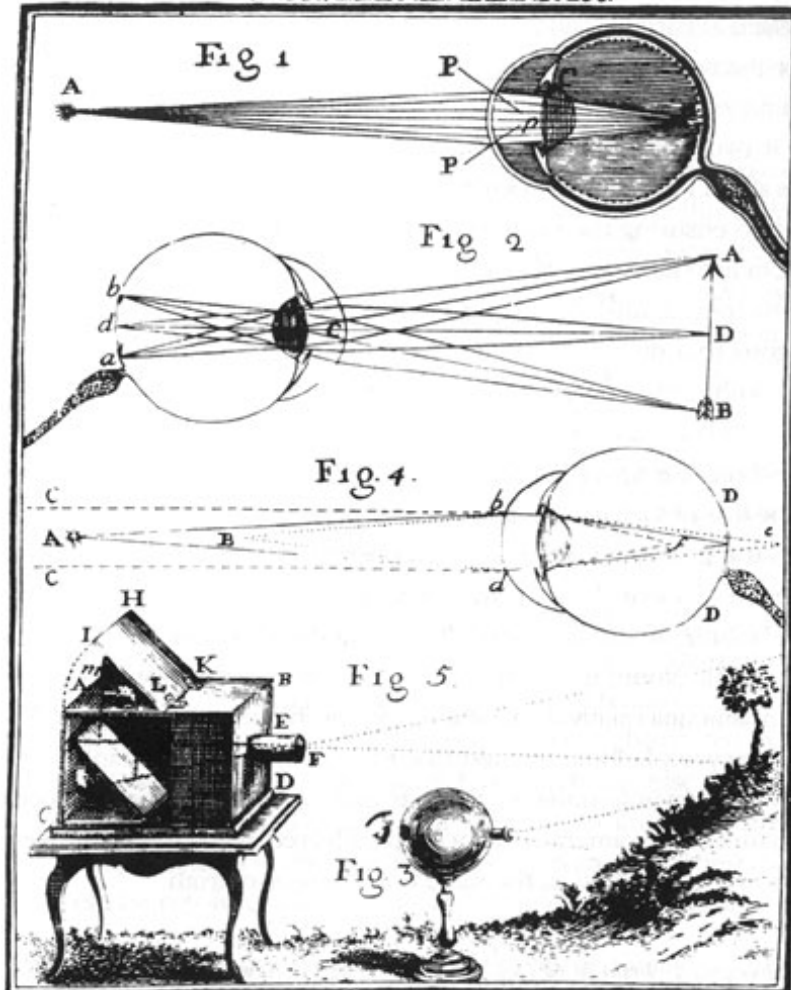
Light drawings and the pencil of nature

In January 1839, the British pioneer in the development of photographic techniques and technologies William Henry Fox Talbot described his images to the Royal Society as 'photogenic drawings'. Sunlight was central to both the material possibilities of the first photography and to its discursive and descriptive framing – to the extent that the development of key techniques and processes could be helped or hindered by the vagaries of sunlight, not least Fox Talbot's good fortune of a 'brilliant summer' in 1835 during which significant advances were made. Sunlight is the medium, in a number of senses of the word, producing 'sun pictures', 'photogenic drawings', sciagraphs (shadow drawings) or – the name given by Nicephore Niepce to his own inventions in this field – heliographs, 'sun drawings'.



This view was taken from one of the upper windows of the Hotel de Douvres. The time is the afternoon. The sun is just quitting the range of buildings adorned with columns: its façade is already in the shade, but a single shutter standing open projects far enough forward to catch a gleam of sunshine. They have just been watering the road, which has produced two broad bands of shade upon it. A whole forest of chimneys borders the horizon: for, the instrument chronicles whatever it sees, and certainly would delineate a chimney-pot or a chimney-sweeper with the same impartiality as it would the Apollo of Belvedere (Fox Talbot 1844)

This famous description of a plate in his book *The Pencil of Nature* explains the photograph in terms that bind together nature and artifice; painted by light and shade, chronicled by an impartial instrument. Elsewhere in the book, a building (Lacock Abbey in Wiltshire, Fox Talbot's home) became the first 'that was ever yet known to have drawn its own picture' (Fox Talbot 1844). Whereas the optics of the camera obscura had been understood as the simulation of human vision - a technology of perception and art, for the early photographers, technology disappeared in the heliocentric poetry of their self-publicity. If nature paints herself through the play of light across the world, through slivers of glass and into silver crystals, then the apparatus of the camera is the stuff of nature itself, fragments of wood, minerals and glass, drawing the world of which they are themselves part.



Virtual image to virtual camera

Digital imaging, particularly in the generation of moving images, has seen a new dissolution of the photographic camera into a new environment. The *virtual* camera is made of the same material as that which it depicts: code. It too simulates vision but now it is the optics of the camera apparatus itself that is the aim of this simulation not biological vision. As many theorists of digital cinema have noted, the 'realism' of computer-generated imagery has been the replication not of the phenomenal world, but rather the look of the photographic image. The widespread simulation of lens flare in computer generated special effects, animation and videogames is one example of the curious aesthetic and conventional interplay between analogue cinematography and computer-generated imagery. These points of animated light spreading across the screen lend to their virtual worlds a sense that these worlds are physically dynamic and complex, that we might actually experience them. The irony — or joke — is of course that lens flare in photographed television and cinema is the product of a technological not human lens, of the camera not the eye. We see lens flare only in the moving image, but read it as actual. As CGI removes the need for cameras and cinematic photography, it simultaneously replicates the camera's technical shortcomings in the name of realism.



Whereas the early challenge of CGI photorealism was to render the detail of texture, light and complex bodies (from hair and fur to water and smoke), more recent movies have had to reverse this. The addition of motion blur is a good example of photorealism exceeding its referent. The clarity of CGI, especially in its depiction of fast moving objects and action, now show up the weaknesses of traditional photography. Recording a dynamic world at 24 or 25 fps can only capture fast-moving objects as a blur, but it is indicative of the hold photography has over our way of seeing the world that this technical failing seems instead, like lens flare, to be an aspect of the phenomenal world around us and our perception of it. Watch a live action film with analogue animation stop motion sequences, for example the ED-209 robots in *Robocop* (Verhoeven 1987). As each frame is a shot of a still object, the object being moved only between shots, the resulting sequence has a clarity quite different from live action footage. A typical response to the appearance of stop-motion effects in live action cinema is that they look 'jerky', whereas they are often the opposite, they are too smooth, they are caught fully by light, frozen by it, frame by frame. The extensive compositing of CGI elements in recent action cinema has necessitated the replication of the weaknesses of the movie camera's capture of light, from focussing up, crash zooming, the addition of shallow depth of field, to shaking and blurring (Mather 2004). The reality effect of the virtual camera in CGI clings to the reassuring inadequacy of the mechanical and the chemical. The scene of a live action film with CGI effects is a mixed environment of sunlit and 'dark' objects and it is not the photographic image as such that is the object of remediation and simulation, but rather the camera.

Though shaped by the histories and technocultural forms of photography, the virtual camera should not be reduced to a familiar media object like those McLuhan saw in his rear view mirror, nor seen as a mere reality effect, an ideological residue of the waning yet still dominant codes of C20th visual culture. The play between artifice and reality precedes all the technocultural forms of cinema and television, and will no doubt supercede them. The videogame is a key example of this.

videogames and the remediation of photography

The technics of any medium are not exhausted by the mechanisms of the recording device and dissemination networks, but include the knowledge, experience, historical and cultural milieu of its users. In her essential essay on the subject of computer game photography, Cindy Poremba asks us to understand digital photography not only as a set of new technologies and remediated aesthetics, but as – in important ways – continuous with the social and cultural *practices* of pre-digital photography (Poremba 2007). For instance she notes marked similarities with photographic practices in physical environments, particularly tourists' photos. Online game players often upload their screenshots of dramatic moments of play or spectacular scenery from online games such as *World of Warcraft* to online galleries such as Flickr. These images from the sunless virtual world will mix there with conventional actual world snapshots of family and friends, travels and occasions. As in the actual world, photographers capture significant places, events and individuals, and these images both look like actual world photography and are collected and displayed in albums and slideshows that draw their interfaces from the physical storage and display media of photographic albums and domestic slide projection:

Photography here manifests itself in both cultural and technical modes: remediating the screenshot in cultural practice and playing out the technical role of photographic production (Poremba 2007: 50).



That these images remain 'photographs' to their creators is no doubt, in part, the rendering of the new in the familiar and reassuring frames of the medium that is being displaced or superseded. Yet, as Poremba demonstrates, we can read the continuities of everyday media practice established in over a century of domestic photography as both preceding and succeeding the particular period of image production characterised by the nonhuman fixing of light. From domestic scrapbooks pasted together in Victorian parlours to the dynamics of the amateur image as trophy ("I was here, I did this"), the aesthetics and passions of collecting and display, and the performance of technical virtuosity, all persist in the making and storage of virtual images:

If the process and ritual behind this image making is similar, the players themselves are validating the reality of their subjects simply by creating a document of these experiences. In

this sense, players are taking real photographs, just in virtual spaces. The image itself does not discriminate with regard to the perceived reality of its contents (Poremba 2007: 50).

Videogames and their worlds offer vivid, complicated and compelling experience for players and playing communities. Photographs taken of, or in, them may not be written with light but in their conventions, their affects, their intentionality, they are simulations and all the more real for that.

The mutation of the virtual camera

This tracing of continuities of the photograph (as cultural object) and photographer (as subject) across the technological and cultural change at the end of the Twentieth Century usefully undermines widespread pessimistic readings of these changes in terms only of loss; the loss of tactile processes and objects, of authentic cultural and artistic creation, whether professional or amateur, the loss of reality itself. J. David Bolter and Richard Grusin's notion of *remediation* offers a more nuanced model of media technological change. It develops Marshall McLuhan's observation that new media tend to take existing media as either their content – for instance early cinema remediating theatre – or as a familiar frame or interface – web pages remediating the printed page for example (Bolter & Grusin 2000). However, over-reliance on remediation as an underlying model of technocultural change shares with the pessimistic attitude the risk of ignoring significant novelty, the emergent and the new as well as the obsolete and archaic. For all the remediations and continuities between actual and videogame photography, there are also profound differences that demand a rethinking of the nature of photography rather than a mourning of its demise into simulacra. Gameworld photographs are real images of a virtual space, but as I hope this essay's emphasis on light keeps in mind, a virtual space is a strange and new environment and so its drawing of itself must also be seen in this dark light. Against a model of continuity and rupture, or the remedial framing of the new in the vignette fade and sepia of medium-specific familiarity, or the quasi-supernatural repeats/hauntings across time and space of media archaeology, I would posit an insistence on mutation and non-linearity. To do so I will draw on Gilbert Simondon's notion of individuation.

With 3D game engines the virtual camera has become much more than a reality effect, rather it is a key gameplay element, it shapes the game, makes it possible. Though some games consciously draw on cinematographic camera angles (most famously the early games in the *Resident Evil* series), whether the game controls the player's point of view is generally more to do with gameplay dynamics than with the remediation of film. In many games, *Super Mario 64* and *Legend of Zelda: the windwaker* to name just two, the camera is freely controllable by the player and swoops around the avatar at will. These virtual cameras are weightless, immaterial, no longer a remediation of cinematography or a photorealist reality effect. In all games with a three-dimensional virtual world the 'camera' is absolutely central to the gameplay, indeed it is the device through which the player at once views and explores their world. As Melanie Swalwell notes of her experience of first-person shooters such as *Quake*:

One of the specific ways in which games of this genre mobilize their players is through the use of the mobile camera; the resultant mobile (visual) perception is demanding because of its kineticism [...] I found the fast paced twisting and turning through (what seemed to be) mazelike architecture extremely disconcerting. I was unaccustomed to having my vision guided by a mobile camera. It felt as if my body could not keep up with my vision. After watching it for a while, the twisting mobile perspective began to colonize my vision so that I would see it in places where it wasn't present (the carpet began to swirl)' (Swalwell 2008: 75)

Or as Cindy Poremba puts it, a new hybrid has been created: "as camera avatar, players not only navigate through the game world, they film it as well" (Poremba 2007: 49).

Cameras obscura: X rays to Xbox



Plate VIII.

A scene in a Library.

Among the many novel ideas which the discovery of Photography has suggested, is the following rather curious experiment or speculation. I have never tried it, indeed, nor am I aware that any one else has either tried or proposed it, yet I think it is one which, if properly managed, must inevitable succeed.

When a ray of solar light is refracted by a prism and thrown upon a screen, it forms there the very beautiful coloured band known by the name of the solar spectrum.

Experimenters have found that if this spectrum is thrown upon a sheet of sensitive paper, the violet end of it produces the principal effect: and, what is truly remarkable, a similar effect is produced by certain *invisible rays* which lie beyond the violet, and beyond the limits of the spectrum, and whose existence is only revealed to us by this action which they exert.

Now, I would propose to separate these invisible rays from the rest, by suffering them to pass into an adjoining apartment through an aperture in a wall or screen of partition. This apartment would thus become filled (we must not call it *illuminated*) with invisible rays, which might be scattered in all directions by a convex lens placed behind the aperture. If there were a number of persons in the room, no one would see the other: and yet nevertheless if a *camera* were so placed as to point in the direction in which any one were standing, it would take his portrait, and reveal his actions.

For to use a metaphor we have already employed, the eye of the camera would see plainly

where the human eye would find nothing but darkness.

Alas! that this speculation is somewhat too refined to be introduced with effect into a modern novel or romance; for what a *dénouement* we should have, if we could suppose the secrets of the darkened chamber to be revealed by the testimony of the imprinted paper. (Fox Talbot 1844).

At moment the sun drawing was invented, an imaginary and technics of the bringing of the invisible to human sight also appeared. The dark light of the electromagnetic spectrum has since been visualised in medical and scientific photography, and scientific definitions of photography refer to the action of *radiant energy* on a sensitised surface, not necessarily *light* in the limited spectrum detectable by the mechanism of the human eye. Nicola Teffer has examined the implications of medical imaging for a contemporary understanding of photography, technologies such as ultrasound and x-ray that rummage in the dark interior of the living human body, a synaesthetic process that visualises sound, touch, or chemical activity on a cathode ray tube:

The images they produce are the result of a blind feeling in the dark, using the echoes of soundwaves, the absorption of x-rays and the excitation of hydrogen atoms to fathom the unseen reaches of the body [...] These are images produced without light, of things which lie beneath the opacity of the skin, and so they derange our understanding of what it is to see, what is a visible thing [...] Part of the profound strangeness of medical imaging technologies is not only that they make the invisible visible, but that they do so by a translation of haptic and sonic information into something that we see (Teffer 2012: 122).

From this perspective, the shift from a surface coated with sensitive chemicals to one that detects light electronically seems less profound and ruptural than the generation of photo-realistic images with no visible referent. Fox Talbot's evocative speculation hints at the ends or edges of the sun-drawing almost at the moment of its emergence. A videogame world is at once Fox Talbot's imaginary dark chamber, filled with (though not illuminated by) invisible rays, and a virtual camera obscura – a room that draws its own picture, at once recording device and object of capture. As computer code, the virtual camera does not exist as a distinct apparatus - it is just one mode of the gameworld or database reporting on its own current state. It is a black box that has photography-like effects, the video gameworld a new mutation of the dark chamber. This questioning of the essence of photography – before and after its technocultural dominance – and terms such as 'mutation' demand a closer conceptual attention to the nature of technocultural development and change.

Virtual heliography

Gilbert Simondon's theory of individuation, published in the 1950s, has proved influential in recent thought on technology and culture, through, in part, his influence on Gilles Deleuze, Bruno Latour, and Bernard Stiegler. Simondon was concerned with how an entity came to be, and to be recognised as such. These 'individuals' could be a crystal growing from a supersaturated solution, a biological species from the processes of evolution, or a technological system from other technological systems and processes. His concept of individuation is explicit in its rejection of teleology, that we could look back to the milieu from which a particular stable (though only momentarily stable) technology emerged and see a linear process of its design and realisation traced back into its prehistory. Simondon challenges the assumption that

we can discover a principle of individuation exercising its influence before the actual individuation itself has occurred, one that is able to explain, produce and determine the subsequent course of individuation. Taking the constituted individual as a given, we are then led to try to recreate the conditions that have made its existence possible (Simondon 1992: 297).

An analogy with direct relevance to this essay would be recent work on the early history of the cinema, particularly in the context of the contemporary post-cinematic moment. Tom Gunning for instance questions the widespread assumption that dominant cinema (in particular the dramatic feature films of Hollywood's classical era, Metz's 'meta-genre' that set the model for global film production for a century) was somehow inevitable, that its precursors from the magic lantern to

Muybridge's experiments were gradually honed, combined and perfected to realise a potential that had always existed. In Simondon's terms, the assumption of the inevitability of classical cinema is (erroneously) used to explain the historical process of its emergence, and this is

because the received way of thinking is always oriented toward the successfully individuated being, which it then seeks to account for, bypassing the stage where individuation takes place, in order to reach the individual that is the result of this process (Simondon 1992: 299)

In applying Simondon's position to our cinematic analogy, Gunning then can be seen as celebrating early 'primitive' cinema (the 'cinema of attractions') for its own characteristics and achievements rather than as a stage towards a more sophisticated cultural form. He finds the explanation in the processes of innovation and experimentation in both audiences and apparatus, not in classical Hollywood as 'successful individual'.

Significantly, commentators on Gunning's work have identified something of these characteristics in digital moving image culture – notably an address to audience that is visceral rather than contemplative, an aesthetics of shock and spectacle, and a fascination as much with the technology of the camera and projector as with the stories they tell (Lister et al 2009, Mactavish 2006, Strauven 2006). Simondon argues that any individuation may have 'left overs', aspects and bodies not included in the new individual but which do not necessarily disappear:

Individuation must therefore be thought of as a partial and relative resolution manifested in a system that contains latent potentials and harbors a certain incompatibility due at once to forces in tension as well as to the impossibility of interaction between terms of extremely disparate dimensions (Simondon 1992: 300).

For instance, cameras and photography were put to all sorts of different uses throughout the Twentieth Century. In entertainment the cinema of attractions persisted in special effects, theme parks, advertising, and animation, fully returning – albeit in mutated form – to centre of mainstream cinema with CGI effects, animation and post-production (Lister et al 2009: 146-150). The dominance of a species or individual (in this case the production of sequences of photographic prints of the visible light spectrum) neither supersedes nor exhausts other lineages.

A history of the virtual camera in videogames might then trace a primitive moment in the fixed depthlessness of the *Space Invaders* screen, through the simulation of parallax vision in the side-scrolling *Sonic the Hedgehog*, with the virtual camera emerging properly with the '3D' First-Person Shooter (FPS) and *Castle Wolfenstein 3D* in the early 1990s. Yet no-one would have thought of this graphic output as camera-like *until* the FPS. Even the imaginary of vision and perception bound up in the FPS flickers between a notion of the virtual camera and of virtual vision. The 'first-person' is at once a simulation of subjective vision (with the gun at the bottom of the screen as a joke on this simulation) and the first-person of film-making language, the kino-eye.

The despair over the supercession of chemical by digital photography in the 1990s is bound up in the assumptions of technological inevitability and completeness that Simondon challenges. If Photography is seen instead as *never* having had an ideal technocultural coherence, if its status as the privileged indexer of reality and truth is understood to have been more complex, partial, contested and contingent, then recent dramatic transformations can be seen as *evolutionary* rather than apocalyptic. The pessimism over recent changes is only sustainable if Photography is seen to have been an individual with no latent potentials or incompatibilities.



In 1822, more than ten years before Talbot's experiments with silver salts, Joseph Nicéphore Niépce spread bitumen on a glass plate, laid on top of it an engraving of Pope Pius VII, the paper oiled to render it translucent. Light passing through the translucent paper hardened the bitumen, the inked lines of the engraving left hidden sections which - still soft - were washed away with oil of lavender. There was no pinhole or lens in this precursor to the photogram, subject and copy and sticky media pressed together and bathed in light. This heliograph - sun drawing - to use Niépce's own term - was always already a copy of a copy, a replication of an earlier printed artefact. Moreover the process entailed the degradation and destruction of the 'original' print, soaked in oil. Friedrich Kittler notes that these early developments of heliography by Niépce were driven by a desire to innovate in lithographic printing, and to automate image-making rather than any prefiguration of lens-based photography. If anything it could be regarded as of a logic of mass media reproduction to come, and therefore anticipated the multiple and proximate encodings of C20th print media, photolithography, halftone and stochastic screening. This was not the distanced and painterly technics and aesthetics of Daguerre and Talbot's light-filled rooms, streets and landscapes, but image-making through contact and proximity. In this, the heliograph finds a descendant in medical imaging - a haptic 'blind feeling in the dark' (Teffer 2012: 131). For Teffer this trope in photography and imaging as nothing less than an alternative history of vision and representation, 'one which proceeds in terms of proximal engagement with reality rather than a distanced observation, which operates through intervention rather than reflection' (Teffer 2012: 124).

This language of the proximate, the haptic, the interventional, resonates with the imaging technologies of virtual worlds, firstly as an evocation of the intense interfaces and feedback loops of the videogame, and secondly through the particular ways in which virtual photographs are generated. If these images are an index of anything it is data or code, one momentary state of a dynamic artificial system, its variables and objects translated and rendered in a simulation of lens-derived perspective. Moreover, the virtual camera itself is code, one element of the same stuff that it is recording. This insight raises two useful observations. Firstly, gameworld photography must be thought differently from actual world photography in at least this respect: there is no material separation of camera apparatus and environment. There are strange echoes here of Fox Talbot's pencil of nature, artifice drawing itself. Secondly, it supports the application of Simondon's individuation to the genealogy of photography. Rather than a story of the gradual perfection of the capture of light through lens and silver, what emerges is a tangled mesh in which both commodified print media and information media are present *before* Photography not only *after* it.

the time of the Pictobox



The Legend of Zelda is a long-running and popular series of videogames produced for a variety of Nintendo consoles. The games' world is a Japanese take on the generic alternative 'middle ages' familiar from fantasy fiction and games from Tolkein and *Dungeons & Dragons* to *World of Warcraft*. Full of magic and spirits, the games also feature anachronistic technologies such as steam trains, clocks, and photography. In *The Legend of Zelda: the WindWaker*, the protagonist Link finds a 'Picto Box' a camera that can be used in a set of sub-quests and tasks. The operations of the Picto Box highlight the mutational nature of virtual photography. On the one hand they generate precise snapshots of the dynamic 3D world and its subjects, captured at the instant and from the vantage point of the avatar. On the other hand they are something new - as well as capturing events in virtual space, tasks requiring the Picto Box highlight the artificial temporality of the gameworld. For example, Link is instructed to photograph a man in a red tunic as he delivers a letter. Clear instructions are given in the walkthrough:

Windfall Island: Picto Box Quest

Talk to the Lenzo, the photographer, check out his photos upstairs, and show him some pictures of your own, and he will soon sign you on as an apprentice (he will do so once he's standing behind the counter). He will instruct you to take specific pictures. Make sure your camera isn't full and get the following shots:

1. Snap a shot of the man in red when he sends of a love letter. During the day, follow the man with the moustache who slowly walks down the stairs from the upper portion of Windfall. Don't get close or he will stop. Wait by the mailbox and take a picture of the whole guy (from head to toes) while he is putting the letter in the box. If the letter is already in the box, it's too late.

What isn't clear from these sparse instructions is that this task can be attempted on *any* day. The player can travel away from Windfall Island, complete other quests, and return to find that the man in red will always be sending the love letter at the particular time of day. Or rather he will only send the letter when Link is there to photograph the action. Each task outlined by the walkthrough reveals a

community and individuals animated only by the act of photography, lives and loves that exist only to be captured:

2. Go to the coffee shop up the stairs. Startle the lone old man in the corner and get his surprised look on camera. You can roll into his table or make him drop the dishes, but the easiest way is to stand in the spot shown in the picture and toss a pot towards him. Immediately get out your camera and take a picture of the man (don't cut his feet or head off) while he's shaking.

3. Find the girl with the orange dress close to the stairs that lead up to the windmill. Position yourself as shown in the pic above and wait for a guy in green to come along. It'll take a while, don't give up. When the two make eye contact, snap your picture.

The photographic instant must be exact, but it is also predetermined, coded, inevitable (as long as Link doesn't get too close and change fate). In Henri Cartier-Bresson's famous photography 'Behind the Gare Saint Lazare' (1932), the rail worker will never jump the puddle and his reflection again, the chance encounter of light, photographer, and subject and all the contingencies of everyday life and history tangled at this point. Whereas the posting of the love letter in this videogame will always have happened and will always happen, as long as the virtual camera auto-activates it. It is potential, inevitable even if never realised. The man in red will walk slowly to the post box every day that Link is on the island, his purpose and existence only to be photographed.

Successful images do not serve, as they have traditionally done, as trophies or displays of aesthetic accomplishment, rather they function as correct solutions to challenges or puzzles, tasks to be rewarded with maps or tokens useful in the player's progress through the game. Photography here is instrumental, answering the demands of the game, it is not an aesthetic or performative practice:

Bring each picture to the picto store owner (one by one) and you will be rewarded with a Joy Pendant and an apprenticeship.

Persist with photographic practice in Wind Waker and new mutational possibilities open up. The magical mise-en-scene leads photography down new bizarre representational and transductional paths:

Give it to the photographer and you will receive the **Picto Box DX** -- capable of color photos. The benefits of this box are manifold. First, you can now partake in collecting pictures of characters and turning them into statues in the hidden gallery on Dragon Roost Island. For those characters that you can't photograph because they only appear in cutscenes, you can go to Lenzo and buy the photos for 50 rupees each.

To mourn the loss of photography in the digital age then is to miss new and strange emergences:

...were we able to see that in the process of individuation other things were produced beside the individual there would be no such attempt to hurry past the stage where individuation takes place in order to arrive at the ultimate reality that is the individual. Instead, we would try to grasp the entire unfolding of ontogenesis in all its variety, and *to understand the individual from the perspective of the process of individuation rather than the process of individuation by means of the individual*" (Simondon 1992: 299-300).

The capturing of images of and in a videogame world emerges not from 'photography' as a stable black box technocultural form, whether threatened by digital technology or not, but from a process of evolution or mutation, of multiple and incessant individuation within the chemicals, lens, sensors, wood, brass, lithographic stone, and in the practices and intentions of preserving instants, analysing environments and presenting techniques.

Conclusion

Though light is extinguished, other facets of photography persist in videogame worlds. The virtual camera freezes a dynamic environment and its animated objects, capturing a moment in time. Moreover it organizes the flux of digital data in space, with as fixed a viewpoint as that of the lens or pinhole. In this sense its images are indexical, they say that 'this did (sort of) happen'. Videogames and their worlds offer vivid, complicated and compelling experiences for players and playing communities. Images taken in them may not be written with light, but in their conventions, their uses, effects and affects, they function, and are understood as, photographs of the virtual.

But in the digital milieu, both within the gameworld as microcosm and contemporary technoculture at large, new entities emerge. If many of these, like the virtual photograph, look like or behave like earlier creatures, we should not assume either that they are merely remediations or returns or that they are the only ones. They should not distract us from the profoundly mutational and the very new. If we pay attention to what the residues of photography and photographic practices facilitate in the new milieu of the virtual gameworld and the digital network, we might see new quite different media technocultural individuals emerging. Not remediated, not rupture per se, but an evolution, a mutation – as it ever was.

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