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Cinematic Motion by Hand

"[…] my philosophy of the simple, handmade movie"
NORMAN MCLAREN, 1948

Introduction

The general goal of my research is to find out what is questioned whenever an animated film is made by an author who chooses to have maximum control over the device automatisms. I am trying to understand in what ways that specific kind of film relates with Cinema and the History of Art as a whole and, more specifically, how its filmic discourse is built within cinematic codes, workings and machinery.

This paper, in particular, aims to establish that each time an author makes a film by suspending both automatic 'motion' and image recording functions—that which is often known as "cameraless" film—a process is initiated that simultaneously questions not only Cinema, within both expression and technology, but also the ontological position this same technology occupies in current media.

The illusion of motion constitutes the most important defining aspect of cinema. Usually the process of producing such an illusion begins by starting the automatic film recording process of moving visible objects at a ratio of 24, 25 or 30 frames per second. Within animation techniques, the recording process is reduced to a single frame each time the camera is turned on-off, as though using a photographic camera. In both process the images will be automatically photographed and put into a sequence by the camera. However, there is one known situation in which the animator suspends all cinematic recording automatisms and produces the sequence of images by marking directly onto the film stock.

When setting up an animation film project and composing the impression of motion, the author appeals directly to the psycho-physiological motion perception mechanisms and world experience of the viewer. He or she is on a quest for what can be perceived and how, the same way a composer creates for a specific music instrument by exploring its expression potentials. By referring to psycho-physiological motion perception mechanisms, I don't just mean sight as (in terms of modern research in Neurology) the perception of movement resulting from a complex combination of multiple neural circuitries in the viewer's brain that process sensory information through the functioning of "mirror neurons" (Ramachandran 2000) and "blindsight" (Ramachandran 2004, p.31). These mechanisms are located in the early stage of visual processing and don't depend on high-order cognition (i.e. they don't depend on thoughtful decisions about what is seen.

I am aware that this thesis might not be easily accepted by most film academics as they prefer to assess cinematic communication as a cultural practice in which all elements are socially constructed. I do not defend this principle. My belief is that whenever an author uses his or her hand to directly produce not only the images that compose the film but also the impression of movement—an impression of a specific kind of movement and not just random motion—we can only watch on the screen, he or she is not building a filmic discourse on conventional signs alone. My hypothesis is that the handmade animation film author creates film discourse directly from his

or her experience of the world (technology and communication standards included) while composing an experience for the viewer. The film seems to be made through a process of questioning and appropriation.

Pondering the written reflections of Norman McLaren, Len Lye and Pierre Hébert, I am convinced that their filmmaking is a process that aims to create communication forms for nameless feelings and experiences that emerge on the fringes of conscience. As I explained before, McLaren did this by propounding muscular memory to control the formal differences between successive images (McLaren 1976-1978), along with the paucity of means for a greater proximity between the author and the film (McLaren 1948); Len Lye by proclaiming the physiological development of a consciousness of movement which could be discovered «through the brain in blood, organs, tissues and nerves» (Lye, Riding 1935)"; Pierre Hébert by creating his film in the collision of languages and technologies, through the pressure of a precise time and space, before an audience (Hébert, 1984). According to each one of these authors, movement should never be understood as a formal, external aspect, of a mechanical character, but as an expression of the physical existence itself, projected externally and seen as a manifestation of life (Graça 2004).

In this paper, I will first outline and question the essence of cinematic visual recording technology. Second, I will consider its emergence, evolution and implications within History, using Vilém Flusser's thesis about photography. Finally, I will examine the creative attitude underneath the making of a film based on illusions of specific movement made through the suspension of all automatic recording. I will conclude with a brief comment about the potential relevance of such experiments within contemporary image production.

Expression within cinematic technology standards and automatisms

Animated films rely on the same technological inventions upon which stands the entire cinema industry. Up to the present time, in essence, this meant the photographic recording of visible objects. Today it also means the use of specific software applications based on algorithms that embed optical and rendering workings of photography.

In McLaren's, Lye's, or even Hébert's and others' work, we often find that the film develops directly from the hand gesture of its author through the omission of that stage in which images are recorded using a camera. This implies that in such films the recording photographic foundation technologies of cinema suddenly have been elapsed. This is completely against what we have been told by conventional film theories as they declare that film is an indexical art form in essence and that this is what precisely differentiates film from other communication forms. As stated by French film theorist André Bazin, a photographic image is an index, more specifically, a trace left behind by the referent itself. Thus, film images connect with reality in a way that does not exist for other methods of depiction such as painting (Bazin 1971). Similarly, Siegfried Kracauer argued that "Film . . . is uniquely equipped to record and reveal physical reality and, hence, gravitates toward it" (1960, p.28). Someone might declare, then, that McLaren's Blinkity Blank (1955) or Lye's Free Radicals (1958, revised 1979) are not film, but until now nobody dared to.

Film scholars seem to disregard that photographed pictures are graphical constructs that can be – and are – used to deceive. We only have to consider how many different meanings can be achieved by merely choosing lenses, illumination, and film sensibility not to mention the more

obvious photomontage and all sorts of other special visual effects. Above all, we have to realize that a set of photographs doesn't constitute a film nor does what we see when we look directly at a piece of film stock – a linear sequence of still images looking similar.

A film is what we see on a screen: the regular, sequential, and rapid display of still images plus something: the effect of apparent motion that only happens inside the viewer's mind. How and when it happens and, above all, in what ways – both technically and expressively – it can be achieved, are the essential questions that lead the creative animation filmmaker's work.

While doing their films, authors like Len Lye or Norman McLaren seem to have developed some sort of experimental epistemology (a study of how the brain represents knowledge and belief) and in doing so, they have not only developed new assumptions – as shapers of sensibility and thought – but they also have established new possibilities within technological functioning and image production as well. They have questioned, affronted, and improved the concepts behind cinematic technological evolution towards new, unexpected ontological possibilities.

The evolution of the cinematic device

In the physical world, motion is essentially perceived as the changing of form or position of something within a three-dimensional space over time. However, the understanding and representation of time, space, and movement has constantly changed throughout human evolution. As Vilém Flusser explains, in prehistoric times environment variation was experienced through physical exploration and the images produced were referential maps that enabled their addressees to orient themselves within it. Their producers had been able to encrypt their environment in a manner that enabled others to decipher it. According Flusser, "Prehistoric images are subjective world pictures that are stored in memories. Once there, they are codified intersubjectively. Then they can be retrieved from memory. Thus, the designing subject is himself embedded in an intersubjective tradition: to a large extent, his code is preset. […] There is a consciousness for which time circulates in space, to order space. And there is a behavior that works to obey the structures of time and space seen in the image" (pp.126-7). Both consciousness and behavior are magical because time and space are experienced as a function of the images.

Flusser argues that "[l]inear writing (especially the alphabet) was invented to replace magical consciousness and magical behavior with enlightened consciousness and historical action" (p.127). During historic times, texts describe images within progressive linear chains of causality and thus the environment can be causally explained and progressively manipulated. These images are not of the kind that dominated before the invention of writing as "historical images are manifestations by means of which the imagination defends itself against the linear conception of the world that wants to explain it away" (p.127), imagination being understood as "the ability to step back from the environment and to create an image of it" (p.129).

With the invention of letterpress printing, around 1450, texts get literally out of hand. By almost the same time (1435), during Italian Renaissance, Leon Battista Alberti publishes the first scientific study of linear perspective that will improve the production of seemingly exact (virtual) representations of the natural world. The production of such images became, therefore, the result of a complex calculation and coding process and, consequently, the images – as Art – are expelled from everyday life. Simultaneously, Science and Art became two separated entities. During the late Renaissance, society started to introduce strict boundaries between the two, as it considered them to be different cultures, different ways of relating to the world. European society definitively instituted these differences by the end of the 18th century, as universities started to be organized into faculties of science and academies of fine-arts.

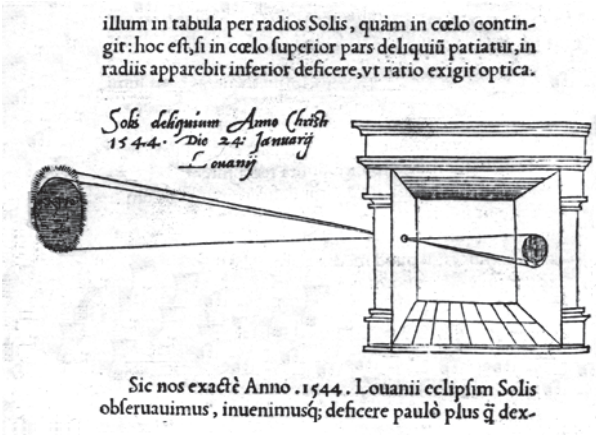

Fig. 1 – Example of 'Camera Obscura' being used to watch a sun eclipse, Louvain, 1544.

Photography was invented at the beginning of 19th century as an automatic drawing machine and aimed to bring pictures back into daily use, to bring perceptions and behavior depending on them back to experience. It seems that it did so not only because photos are easier to make than paintings, but also because we can identify some sort of point-to-point rule of correspondence between them and physical reality. However, Flusser strongly argues that each photographed picture is already the result of a calculation process and, in its very essence, is not the expression of a physical direct human experience of time and space but rather a visualization, that is "the power to concretize an image from [computed] possibilities" (p.129).

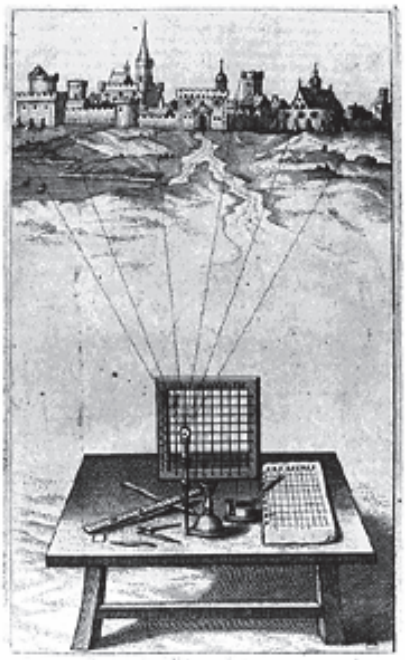

Fig. 2 – L. B. Alberti's grid.

Technological objects never stand alone. They are always part of a row constituted by earlier and later instances of related objects. It is known that the photographic camera evolved from the *camera obscura* and from Leon Battista Alberti's grid, among other devices, two examples of drawing machines that were used to calculate visualizations since Renaissance. Their principles of rendering are built into the photographic camera's technical scheme: photography was invented to automate and fixate linear perspective mathematical representations. Images made through the application of linear perspective rules are computed possibilities, as the Baroque painters and architects have widely demonstrated by manipulating our perception and making us experience 'virtual realities'. Flusser states that "[p]hotographs are only the first of [...] posthistorical images" (p.129) but my opinion is that we can establish an evolutionary direct line between linear perspective and photography. We can also ascertain a strong conceptual familiarity between 'perspective' images and CGI images.

Additionally, with the invention of photography, images became mechanically producible, reproducible and distributable, as text was already. From that point on, image makers were required to work together with technicians. Today, within the digital production of images, the presence of technicians is even more evident, to the point that it is considered normal to join a technical school in order to learn how to produce an image.

From this brief overview, I want to retain two premises. The first is that photography does not correspond to a neutral process of 'copying' physical reality but, instead, is a process of building virtual representations according a set of precise mathematical rules. The second is that the production of contemporary images—posthistorical images—depends on collaboration with a hierarchy of highly specialized technicians able to identify and operate different aspects of the technical object functional scheme used in the process. This establishes a secondary and derived position for the artist.

Incorporating and questioning technology instead of the human factor entering into the apparatus

Len Lye arrived at an original conception of the mind and its significance within the process of creation: his theories of the 'old brain'. Above all, he developed a unique way of comprehending movement, which he applied in his direct film technique by scratching directly on the celluloid through the sudden ("spastic"?) movements of his body.

I consider Lye's short film, Free Radicals, a masterpiece. Starting with black 35mm film leader and using all sorts of blades and needles, Lye pierced marks through the emulsion, revealing the clear acetate below. Accompanied by African rhythms, the scratches are perceived as three-dimensional forms that twist and transform. They are meaningless scribbles – insignificant – but they succeed to awaken motion in our viewer's body (in what part of my body do I feel that?). Concerning Len Lye, Pierre Hébert will recognize his resolve to break with standard images made by western mass culture: to escape from Griffith style, Lye will assert about his jump cut experiments. Lye was looking for deeper realities, as Hébert suggests. He also argues that, if Lye followed unknown and irregular technical paths, it was to get away from western realism. Technical invention has never been an objective by itself. Hébert is convinced that, through spontaneous doodling, Lye was looking forward to escape western rationalism all together (Hébert 1983, pp.10-12).

By 1986, Pierre Hébert invented an unusual kind of performance (live scratched animation), which took him to perform in many countries in Europe and North America. In those performances, he improvises live cinematic dialogs with musicians such as Fred Frith, Robert Marcel Lepage, Jean Derome, René Lussier, and Bob Ostertag, whom he met in 1989. Since then, Hébert has collaborated with Ostertag on many Living Cinema projects, the most recent being Portrait of Buddha in which computers are used to process live animated images and sound in front of an audience.

Speaking at the Images Festival, Hébert explained why his work in film had evolved to this point: "What I like in scratching on film is its deep anachronical character. It's a technique where there is a sort of historical short circuit. When you decide to disregard the photochemical technology of film you take a very naive stance, saying 'well, this is supposed to bear an image, so I will scratch an image on it, using a gesture that is as old as humanity.' I understood that there was in this a critical or remote stance, and it could be quite provocative, a statement about the historicity of technology" (Hébert in Gehman 2001). It was Pierre Hébert's writings that first brought my attention to this aspect of handmade films. His work and thought pushed me further in order to better understand the philosophical dimension of this specific attitude within film creation.

We only have a few writings from Norman McLaren. Most of all, they are explanations and guidelines about his animation techniques, made having in mind those who were curious about the 'secrets' beneath his work. Instead of stressing, with respect to the elaboration of films, the logical priority of industrial standards, McLaren suggested to focus on the absolute priority of handling personally the technical mechanisms within the process of film construction itself:

Fig. 3 – Bob Ostertag and Pierre Hébert during a performance.

"To sum up, the conception and execution of most of my work for the National Film Board has probably depended on four things:

(1) Attempting to keep at a minimum the technical mechanism standing between my conception and the finished work.

(2) Handling personally the mechanisms that do remain, in as intimate a way as a painter his painting, or a violinist his violin.

(3) Making the very limitations of these mechanisms, when brought in touch with the theme, the growing point for visual ideas.

(4) Making sure of a chance for improvising at the moment of shooting or drawing" (1948).

It seems clear to me that he was struggling to bring technology within the reach of human experience, to the distance of his hand. The alternative would have been to become part of the production line as a *functionary* of the technical scheme within the apparatus: that is, behaving according to its *function.*

As we know, there's no author in a production process controlled by machines, as the creative essence of the process is only to be found at the process of concretization of the technical tool itself and not in that which it is able to produce. Therefore, we only have users in a process defined by the qualities and limits imposed by the technical object's functional scheme. In these circumstances, the creative skills of the user would only develop by optimizing the epistemological model it integrates, i.e. the perception of order and the ways in which that order is imposed upon reality by documents and the technical workings that holds them. By overwhelming the cinematic technical workings with the gesture of the hand, 'cameraless' authors exposed its technical scheme to contingency, thus opening the production process to new unpredictable expressive and communicative possibilities. This corresponds to a renewed way of comprehending technology by, simultaneously, revealing the human reality it contains and physiologically incorporating it. Within these circumstances, the film is made directly through the body of the animator but throughout the appropriation of representation and transformation routines of its own era. Film becomes the expression of this relation itself. The essential purpose of making this specific kind of animation seems to come from the necessity of connecting the human self and its technological creation: to gather the world catching our self at the core of the function and performance of the technological devices created to alter the relationship between each human being and his or her life context. To get closer with what makes us as we are today.

This process recovers an experienced – and thus differentiated – time-space at the core of the industrial film technological set, through the poetic manipulation (which is also a probing attitude) of the filmic technological workings themselves. Through that gesture it seems possible to re-install a "prehistoric image" creation attitude within a context clearly defined by the massive production of "posthistorical images", those who subsume a calculated vision built upon scientific texts and data. These experiences stand for a new concept that we will have to take into consideration in order to comprehend – both with our minds and with our bodies – not only contemporary film production made through digital technologies but all available fast developing technologies.

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Images courtesy The Len Lye Foundation and Pierre Hébert
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