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| Final Essay |
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Who Is Behind The Bright Screen?

Was there an only, lonely, defined creator of the Cinema?

If we could establish a parallelism between the Henry Jenkins (Jenkins, 2006) conception of the present culture production system and the birth of cinema as another cultural industry, we could say that both processes are based on the convergence of many technologies, resources and efforts in a unique common point.

Although in the collective fiction production is based in the simultaneous presence of many complex media systems (cinema, television, Internet, press, weblogs, etc.) and the participation of the audience, the birth of the Cinema as a new medium of expression was much more basic, and, considering the technical advances of its time, intersecting the rising free market behaviour.

Given the complex circumstances in the progression of its development, we are not able to designate only one creator of cinema. Otherwise, we must consider that the development of this medium brought together:

the technical developments of

1. the capability of registering an analogical image,

2. sensible enough to permit many pictures per second,

3. with the technology for making many pictures per second from the same camera, and

4. the capability of projecting the registered image

5. with a system able to scroll and lock many images per time unity;

and the social characteristics of

1. being a public projection, not in laboratories not private circles,

2. being under the capitalist concept of payment and profitability.

The birth of the Cinema is not just related to the birth of celuloid; it is also related to the human use of images as a form of communication, and by extension to the development of the

reality representation in a visual medium (the image itself). To understand how far away we are going when we attempt to understand the Cinema phenomenon, Paul Burns says that "motion has often been depicted in early cave art. When the subject (mostly animals) has been that which can provide movement, we often can see it in that state" (Burns, *Chapter One*). It is the same if we consider the Column of Marcus Aurelius (Rome) or the hieroglyphics, in which the figures depict some kind of mixture between the story progression and the static painting.

But, as everybody could guess, it is not possible to consider the cave art as Cinema because of the technological limitations of their medium: they were not even able to represent the image in an analogical format, nor able to represent a faithful motion of the recorded subject, thought it had a social function.

With the aim of fidelity, the pinhole was developed as a way of hand-copying the nature outside the cavern (idem). The light entered from outside into a dark space by a tiny orifice and projected the outer reality in an analogical way. The famous "camera obscura" would serve scientific celebrities such as the astronomers Johannes Kepler (1557-1630), who would develop a portable one, or Pretro Gassendro (1592-1655) to analyze the orbit of heavenly bodies.

Joseph-Nicephore Niepce would cross this optical phenomenon, known by centuries and used also in architecture, with Robert Boyle's and Gionanni Battista's research about silver chloride. Subsequently, he got the first formal photography in a fixed format. Daguerre and Talbot would be able to improve this technique, but the support was too opaque and heavy to consider using fo a twelve-frames-per-second roll (Monje Arejas, *Capítulo 1*).

Athanasius Kircher (1602-1680) not just stayed in the "light-eating" box; he also understood that this concept worked two ways, so it could be possible to project from one space to another, not necessarily from the open wild outside to a wall. (Burns, *Chapter Three*). The objective was to make the object inside the box light enough to trespass the pinhole and stay visible.

However, many other important steps had to be taken before the concept of photography projection as we nowadays understand it, became possible. In the 17th century, (Walter, *Timeline*), the use of the magic lantern projection implied a functional optic system and trans-lucid hot-resistant illustrations. If we attend to the evidences, Leonardo Da Vinci (and maybe his contemporaries) already knew the underlying theory of this system in the 16th century (Burns, *Chapter Two)*.

The lens allow a big amount of light to focus on a small surface, achieving a substantial increase on the brightness. And we should also think about the transparent film, that avoided the loss of light; it transformed the bounced light in a direct light beam.

On 1866, L. S. Beale invented the Corotoscope, a continuity mechanism that allowed the traditional lanterns to project moving images (*Historia del cine*), but without conceiving these as a register of reality. We could approach the perception of these machines, and also the rest of the non-automatic ones, as a way of projecting the short graphic stories of the journals, not with the intention of making the subjects in the pictures execute entire movements such as walking or fighting.

The problem of how to register the movement remained present.

The persistence of vision phenomenon was well-known by this time, but for making it work over the film it needed a mechanism able to move a picture quickly, fix it in front of the vision and change it again. The predecessor of this was the Thaumatrope, a hand-moved piece of paper with two images, one on each side; when moved, booth images were combined in the retina (Burns, *Chapter Seven*).

By that time, it did not possible to register even ten images per second, which Joseph Plateau established was the minimum needed in order to keep the illusion of movement real ("Historia del cine").

In 1832, "Plateau and sons introduce the Phenakistoscope. […] Pictures on one disc viewed through slots in the other, appeared to move when the two were spun and viewed in a mirror." (Walter, *Timeline*). The Zoetrope and many other illusion toys were created for amusement, but they worked just with illustrations due to numerous problems of the photographic format in fixing the image as fast as possible for later reproduction.

Neverthless, Tabot developed a way to print the negatives on paper (idem) so, as fast filming was not necesary, as it was possible to perform a sort of stop motion with real images, in combination with the aforementioned toys.

When Muybridge applied the time lapse register to some animal movements (1873) and "George Eastman invented celluloid film, that is (sic) was possible to take a series of pictures with motion" (Kovarick, *Brief*), we get all the ingredients for the beginning of a truly reality-in-movement register: a quick, long format and the capability of representing the outer world in an analog way. In 1887, Marey would fill Muybridge's work in a projectable, animated format.

The Muybridge's Zoöpraxiscope is one of the first known film projectors, designed before 1881 (seven years before Lumiere invention), however it had the disadvantage of having the frames all over a disc surface, not in a proper film; this limited the length of the film to short periods of approximately one second.

The photographic revolver would enable Jules Janssen to register forty-eight images

of Venus between its pass through the Earth and the Sun on a twenty-five centimeters disc. A few years later, Esteban-Jules Marey would build the photographic rifle, an invention that could register twelve frames per second in only one plate .

In 1889, Wastman Kodak invented the flexible film based on the fabled celluloid ("Historia del cine"). At this point, then, we reached all our technological points: the existence of the photography, that permitted the existence of film cameras, that inspired long term film material.

After this, Edisson and the Lumière family, without mentioning many other less successful inventors, will start the race for being established as the inventors of the cinema. "Luise and Auguste [Lumière will] design a camera which serves as both a recording and a projectinge device", which will be presented to the public as the *Cinématographe*. Meanwhile, the Edison's *Kinetoscope*, which also used flexible film, was presented in London (Walter, *Timeline*).

Surprisingly, Edisonn did not patent his invention outside the United States (idem), because he apparently only cared to provide the film copies to the exhibitors, as a franchise on the broadcasting right.

Once we have all those ingredients, we could think that there is some kind of fight in determining who was the true creator of the cinema, because the time gap between the public showing of Edison's and the Lumiére brother's inventions was only a difference of months.

The applied criteria to determine who was the first are not just based on the time, (sino) but on the conjunction of three factors: being a motion picture projection, being a paid projection and being a public projection.

Edison, probably because his extremely market-appointed way of thinking, decided to make his own machine "private", in the sense that only one person at the same time would be able to enjoy the picture though some kind of scuba-diving glasses. On the other hand, the Lumiére brothers decided to make the projection public in a Café, and it is because of this that we can say that they were the first ones who conceived of the Cinema as we do nowadays: as a public paid projection -the three P's-.

However, we should consider one last question about the success of the brothers, surprisingly based neither on the mainstream of their time nor in the real values of public paid projection:

"The Lumières may not even have been the 'first' to project moving pictures on a

screen to a paying audience; this honour probably belongs to the German Max Skladanowsky, who had done the same in Berlin two months before the Cinématographe's famed public exhibition. But despite being 'scooped' by a competitor, the Lumières' business acumen and marketing skill permitted them to become almost instantly known throughout Europe and the United States and secured a place for them in film history." (Nowell-Smith, 33)

In conclusion, the birth of the Cinema as a mass medium was not the product of only one person. It was the enterprise of science researching, artistic intentions and economic benefits, and it cannot be conceived as a creation of a lonely inventor in his workshop; in fact, it is the product of many people working on it for a long period of time, without the necessary aim of transforming the reality into a reproductive movement on a wall, but with the final intention of an economic benefit.

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