Machines and their vital beats: for a *lato sensu* cinema
As máquinas e seus batimentos vitais: por um cinema lato sensu

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Abstract: Based on Arlindo Machado's readings of Gilbert Simondon, still in the 1990s, we revisit this author to explore his thoughts on imagination, invention and the complex network of relationships between machines and humans, in a reflection on the practice of cinematographic photography and its images.

Keywords: Béla Tarr; Gilbert Simondon; cinematographic photography.

Resumo: A partir das leituras que Arlindo Machado faz de Gilbert Simondon, ainda nos anos de 1990, revisitamos este autor para explorar seu pensamento sobre a imaginação, a invenção e a complexa rede de relações entre máquinas e humanos, numa reflexão sobre a prática da fotografia cinematográfica e suas imagens.

Palavras-chave: Béla Tarr; Gilbert Simondon; fotografia cinematográfica.

The human and the technician in one same body

The vital beats of the cinematographic image are created, processed and displayed by machines, devices conceived in the womb of the industrial revolution in the 19th century and, until very recently, hosts of the same main technical characteristics that engendered its birth. They are present in all stages of making and showing a film, from the manufacture of materials (and, of course, the machines themselves) to the procedures of filming, finishing (images and sounds) and the much-desired projection. The entire path is crossed by the current technology available at the time when this or that production is carried out. Or rather, the path is given by technology itself, we humans walk with it. From time to time we face some revolutions, such as the one that is taking place at this very moment, which change the filming and finishing processes, modify the working methods, transform the articulation mechanisms between the machines and their operators and remodel the very dimension of what we call Cinema. In all these spasms of the history of technology there are apocalyptic proclamations that predict the extinction of Cinema[2] or claims about its immortal vigor that fluctuate between nostalgia and euphoric optimism. There are also the birth decrees of a new being that would bear some resemblance to its progenitors and that, despite the genetic line being clear, could not carry its name because it was an entity of another nature. Cinema, this creature in constant mutation, oscillates in the minds of specialists between annihilation and resurrection. Whether to kill it or to revitalize it, words revere its sovereignty and its power to reflect on ourselves. Which direction would lead us to understand the "true" cinema? Which current to follow? The one that interrupts the paths and creates eternal new cycles or the one that expands the past to perpetuity?

Without wanting to belittle the debate between the strands – since, by turning to the resistance (or not) of Cinema, they raise relevant questions for its study – our path significantly deviates from this dispute[3]. The reason for such distancing does not lie in the hesitation about which of the guidelines we should follow, but in the belief that all paths give access to the same place:

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[2] For a more in-depth look at the issue, we suggest reading "Mas afinal, o que sobrou do cinema: a querela dos dispositivos e o eterno retorno do fim", by Fernão Ramos, na Revista Galáxia, n. 32, p. 38-51, 2016.

[3] A term that entitles one of the key books of the debate: *La Querelle des dispositifs: cinema – installations, expositions*, by Raymond Bellour, 2012, and which is also adopted by Fernão Ramos (2016) in his article.

that of amazement about the *enigma of visibility* (MERLEAU-PONTY, 2013, p. 23) and its offshoots. A charm that affects individuals differently according to the different times in which its mysteries are experienced. There are many studies that bring rupestrian paintings closer, for example, to cinematographic art, such as the studies of the so-called proto-cinemas – detailed by Arlindo Machado in his book *Pré-cinemas & pós-cinemas* (Pre-cinemas and post-cinemas, 1997a) and by Marc Azema in *La préhistoire du cinéma: origines paléolithiques de la narration graphique et du cinématographe* (*The prehistory of cinema: paleolithic origins of graphic narration and the cinematograph*, 2011). Which were revisited, film-like, in the documentary *Cave of forgotten dreams* (2010), by Werner Herzog, who, with his eloquent voice, makes us travel back in time, through a supposed reconstruction of a "film session" of our ancestors, we witness the indelible force – and why not say mythical? – of visibility. As we look at the painted rock reliefs of Chauvet's cave, which are illuminated by a slow-moving spotlight, we hear: "For these Paleolithic painters, the interplay of light and shadows in their torches must have looked like this. To them, perhaps, the animals seemed to be moving, alive. […] the artist painted this bison with eight legs, suggesting movement, in an almost proto-cinema form" (*Cave of Forgotten Dreams*, 2010). We believe that the fascination for the moving image has always been inseparable from humanity[4], and even with all the distance that there may be between a torch lighting, giving movement to the cave images, a magic lantern, a movie theater along the lines of Baudry[5] and a pair of virtual reality glasses, the seductive power of the image remains alive, active and challenging.

Therefore, our itinerary focuses on what we believe remains present in the face of the fatal transfiguring successions of the moving image. For it is not our concern to attest whether the hundreds of paintings over 30,000 years old found in the Ardèche are part of a desire for cinema itself. However, this long timeline serves us to insert ourselves in an idea of cinema and, to make it explicit, we borrow a few words from Arlindo Machado:

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[4] For a deeper understanding of the issue we recommend: WACHTEL, Edward. *The first Picture Show: Cinematic Aspects of Cave Art* in Leonardo n. 2 San Francisco, 1993, v. 26 and LÉGLISE, Paul. *Une œuvre de pré-cinema, l'Énéide: essai d'analyse filmique du premier chant*. Paris, *Nouvelles Éditions Debresse*, 1958.

[5] The cinematographic device, as consolidated by Jean-Louis Baudry in his article "Cinema: efeitos ideológicos produzidos pelo aparelho de base", written in 1970 (in XAVIER, 1983, p. 383-399) and further deepened in "Dispositivo: aproximações metapsicologias da impressão de realidade (1975), both published in his book *L'effet cinéma* (1975), in our view, hold equivalences to Herzog's experience.

> We can conceive a *lato sensu* cinema by following the etymology of the word (from the Greek *kínema-ématos* + *gráphein*, 'writing of movement') and, in this case, we would be facing one of humanity's oldest forms of expression, born when some pre-historical man made the shadow of his own hands project on the walls of a cave". (MACHADO, 1997a, p. 211)

A visually kinetic form of expression that, in different ways and with different technical configurations, accompanies us in celebrating the enigma of visibility. By retracing the technological history of cinema – from a *lato sensu* cinema as thought by Arlindo Machado – we will see that it has always been in transformation and, if today our cell phones fulfill the role of Plato's little caves, it is because the constant movement of technology is its fortune. A movement that, in our view, has neither beginning nor end. There is no single origin or "discovery" of Cinema. What exists is the specific use of several "discoveries" combined in a function that is also specific for each era. What we see as an evolution of optical devices that over the centuries flourish in the form of moving images more or less triumphant, is nothing more than the human capacity to transform ideas into things, to examine materials with curiosity and to give body to the imagination through its inventive predisposition. Let us think of imagination, then, not only as an abstraction opposed to perception (for if I perceive, I am in contact with the perceived object, therefore non-imaginary) but as a power of action, of production. The expansion of modes of observation in relation to the imagination makes us able to make some useful connections for understanding the permanent aspects of cinema and, in particular, the technological transition. Imagination, as conceived by Gilbert Simondon in his course *Imagination et invention* (1965-1966)[6], for example, "shows us that what precedes perception […] is already the birth of an 'image cycle' that extends to perception in the form of 'intra-perceptive images' and beyond perception through 'memory-images'" (BARTHÉLÉMY, 2012, p. 212-213).

> The mental image is like a relatively independent subset within the living subject; at its birth, the image is a bundle of motor tendencies, a long-term anticipation of the experience of the object; during the interaction between the organism and the environment, it becomes the host system of the incident signals and allows the visual-motor activity to practice on a

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[6] Posthumously published under the same title by *Éditions la Transparence* in 2008 and translated into Spanish by Editorial Cactus, Buenos Aires, 2013.

> progressive basis. Finally, when the subject is again separated from the object, the image, enriched by the information, becomes a symbol. From the universe of symbols, which is internally organized, when it comes to saturate, may arise the invention which is the involvement of a dimensional system more powerful and able to incorporate more complete images in the way of synergistic complementarities. After the invention, the fourth phase of the becoming of images, the cycle begins again with a new anticipation of the meeting with the object, which may be its production". According to this theory of the image cycle, reproductive imagination and invention are not separate realities […], but successive phases of a single genesis process presented by the world. (SIMONDON, 2013, p. 09-10)

Thus, imagination would be a continuous cycle that permeates the pre-perceptive state (motor tendencies found in the anticipation of experience), perception (interaction with the environment, with the object), memory (affective-emotional resonance of the experience), invention (organization and combination of images) and production (a new encounter with the concrete object, not the same, but a result of the invention). This cycle of images that traces the path of inventive thought from the imagination puts us in a non-linear continuity, in a perennial flow of creations and technical transformations that occur within a "synergistic compatibility". That is, within a simultaneous action of all different moments and different agents. A technical imagination formed by a circuit of internal and external images at the service of materializing human intentions.

> The imagination is not simply the faculty of inventing or eliciting representations outside sensation; it is also the capacity of the prediction of qualities that are not practical in certain objects, that are neither directly sensorial nor entirely geometric, that relate neither to pure matter nor to pure form, but are at this intermediate level of schemas. We can consider the technical imagination as being defined by a particular sensitivity to the technicity of elements; it is this sensitivity to technicity, that enables the discovery of possible assemblages; the inventor does not proceed ex nihilo, starting from matter that he gives form to, but from elements that are already technical, with respect to which an individual being is discovered as that which is susceptible to incorporating them. (SIMONDON, 2007, p. 94)

Simondon's idea of a technical imagination as a sensibility capable of seeing its own technicality in things makes the transformation movement constant

and circular, as each era gives existence to its own objects. The technical object, thus, "thought and built by man, is not limited to creating a mediation between man and nature; it is a stable mixture between the human and the natural, it contains something human and something natural" (SIMONDON, 2007, p. 261). Following his thinking, we will see that every artifact, everything that is built by man (therefore, the very definition of artificial) has its natural facet. Artificiality is necessarily linked to man, because it originates from him, and any technical object is dependent on human intervention to perpetuate its existence. Thus, the internal consistency of the technical objects themselves expresses their naturalized portion, in which "the artificial would be the natural raised" (SIMONDON, 2007, p. 271). So that we do not just stay in the abstraction of the philosopher's words and that we can see part of his reflection on the things of life, let's think a little about cinema and its many machines, more particularly the camera. To begin, we evoke the words of Arlindo Machado, an attentive reader of Simondon who, barring better judgment, presents the first reflections of this author in the audiovisual field in Brazil:

> Gilbert Simondon (1969) really went on to defend the idea of that we should not regard the machine as a simple mechanical artifact, belonging to the domain of gross things: It is, above all, the realization of a mental process, a thought that took shape and gained an autonomous existence. Inventing a machine means, for Simondon, to give material form to a process of thought. There is, therefore, an intelligence inscribed, for example, in the cinematographic camera, which corresponds to a technical potentiality of making duration perceptible, giving shape to the impressions of time and representing the speed, regardless of what it films or who uses it. (MACHADO, 1993, p. 34)

The elementary function, the decisive utility of the central technical object of cinema (the camera) is the reproduction (for lack of a more precise word) of images. A camera that does not fulfill this role may even be a camera (*camera obscura*), but it is not photo-cinematographic. However, when performing its unpretentious and programmed task, it enters the chain of images and offers its contribution to the cycle of imagination-invention (itself being a fruit of this cycle). Once its function is performed, the image that is born from it (an artificial image) feeds back into the circuit itself. Its artificiality gives it a condition external to man (even if it came from him) and guarantees it a life of its own within the universe of aesthetic objects. This emancipation makes its potential as an

image to intensify, become part of a technical set that is predestined to provide a re-encounter with human beings (projection) and, at that moment (repeated times in the history of each being and in the history of cinema), the artificial image ends up being assimilated (both individually and socially), becoming part of the imaginary again in the form of memory (affective-emotional resonance) and, in a way, it is absorbed. The image conceived in the imagination of the creator/filmmaker, modeled by the camera (also conceived by the imagination and invention) and internalized in the spectator's mind is naturalized in new images and the camera-projection technical set itself (artificial par excellence) is also incorporated and renewed constantly.

The aesthetic existence of technical objects

Thinking the natural and the artificial in a common ground of imbrications creates space not only for the construction of technical objects as specific tools for problems of a certain time, but as products of human individuation itself (in constant mutation) that "forges connections and inscribes them in the objects" (SIMONDON, 2007). And, by glimpsing in matter "certain qualities that are neither practical nor directly sensory", the technical imagination acts as the propellant, both of technological innovations and of the aesthetic inventiveness that is directly linked to the vicissitudes of humanity. The communion between the human and the technical, between the artificial and the natural, or between aesthetics and technology in Simondon's thought and revisited by Arlindo Machado, seems right to approach cinema from the perspective of cinematographic photography: fruit of a series of relationships between machines and people through the ages. So, we can look at cinematography not only as an instrument for making a film, but as something existing below and beyond technique. Or, better said, look at cinematography as a mode of existence of its own and conceive it beyond the limits of the direct applicability of its machines.

> Culture is unbalanced because it recognizes certain objects, like the aesthetic object, granting them citizenship in the world of significations, while it banishes other objects, and in particular technical objects, into a structureless world of things that have no signification but only a use, a utility function (SIMONDON, 2007, p. 31)

Simondon calls for a "title of citizenship" to the technical object and develops the links of this protest in his secondary doctoral thesis, *On the Mode*

of Existence of Technical Objects (1958). Right at the beginning of his text, he highlights the mistake of thinking the technique (the machine) within an antagonism in which, at one of the poles, it would be a foreigner, an unreachable and strange being, about which we would feel a certain aversion (for being unknown) and that could eventually evolve in an excessive way to subtract the human portion of humanity, in a kind of technophobia. At the other end would be a goddess with mad followers adhering to its perpetual novelties, its latest releases, in a foolish and excessive idolatry, in a sort of technophilia. Contradictory attitudes towards the machine fluctuate between thinking of it as an agglomeration of matter devoid of any content whose existence is limited to its usefulness, to a usefulness similar to slavery; or, in a totally opposite direction, it could surpass humanity, create a life of its own and become independent, achieving its freedom through a supposed peak in its automatism. We have not yet reached the era of robot perfection in human image and likeness, and Simondon does not support the idea that such a machine may one day exist, as for him the reduction of technology to the category of mere instrument or the sphere of an autonomous intelligence in the form of a self-sufficient android directly hurts the very mode of existence of technical objects.

In this way, the technical object is seen as an enhancer of the negentropy factor (cohesive force) and not as a mechanical object dissociated from human reality. For the philosopher, the technique (the machine) exerts a direct influence on the bodies of individuals, and its user action, its supposed usefulness, triggers a transverse alteration, a kind of continuous exchange with who (or what) is part of this articulation. In this way, the technical object is nothing more than a being in connection with bodies and minds, and not a mechanical object dissociated from human reality or even independent from other technical objects. "The presence of man in machines is a perpetuated invention. What resides in the machines is the human reality, the human gesture fixed and crystallized in structures that work" (SIMONDON, 2007, p. 34). This presence also occurs in reverse, as the machine is also crystallized in the human gesture. Simondon questions the autonomous character of machines as follows:

> […]Automatism, however, is a rather low degree of technical perfection. In order to make a machine automatic, one must sacrifice a number of possibilities of operation as well as numerous possible usages. […]The true progressive perfecting of machines […] corresponds not to an increase of

automatism, but on the contrary to the fact that the operation of a machine harbors a certain margin of indeterminacy. It is this margin that allows the machine to be sensitive to outside information. Much more than any increase in automatism, it is this sensitivity to information on the part of machines that makes a technical ensemble possible. A purely automatic machine completely closed in on itself in a predetermined way of operating would only be capable of yielding perfunctory results. The machine endowed with a high degree of technicity is an open machine, and all open machines taken together presuppose man as their permanent organizer, as the living interpreter of all machines among themselves. (SIMONDON, 2007, p. 33)

Or, in the words of Arlindo Machado: "Machines and programs are creations of man's intelligence, they are materializations of a mental process, thought that took shape" (MACHADO, 1997b, p. 4). "In this sense, the 'possibilities' of this technology cannot be seen as *static* or *predetermined*; they are, on the contrary, in permanent mutation, in continuous redirection and grow in the same proportion as their repertoire of creative works" (MACHADO, 1997b, p. 7). Thus, we can think of the cinematographic camera as an open machine that reflects the materialization of human thought with a vocation to instigate creation in a reciprocal process of permanent mutation.

In this way, we can ask ourselves with what outside information it would be prone to dialoguing when under the baton of someone who orchestrates the interrelationships of a film crew and its many technical objects. In addition to capturing light energy – or what we could consider the visual portion of what is to be filmed –, the moment when the camera is activated triggers an immaterial cohesion between bodies and machines. This vital impulse triggered by the camera coordinates, in our view, the "indeterminacy margin" that the camera itself offers. What, then, would be the indeterminacy margins of a camera/film crew in action? The immediate answer would be: everything that leaves some space for a momentary intervention and that can adjust, in the present time, to the environment and the action. The technological development of movie cameras translates into a constant effort to creatively conquer these qualities. From an improvement in the mechanisms for recording 'simple' movement (with its possibilities of relating to the environment at the most varied speeds to obtain different visual results) to the evolution of optical elements that allow an optimization of light energy and expand the possibilities of image capture for environments and lighting conditions that previously could not be registered.

At the same time, we can think about the sensitivity of the materials (of the sensors) and their incessant search for a greater definition or even the increasing capacity of data storage, enabling a potentially infinite filming. There are many aspects involved in the development of cameras over the years. However, what interests us to think about Simondon's indeterminacy margin is to understand that this margin is not something that can be evaluated only by looking at the machine, but by the way the machine relates to the environment and to man in the fulfillment of its function.

Cinema as an ecumenical space

Let's think about the margin of indeterminacy from a very simple example, with a common technical object, such as our cell phone camera. The programmed automatism of a camera of this nature (either for economic reasons or for the purposes of an industry focused on promoting an amateur consumer) means that we cannot interfere in a series of aspects of the image, much less in its relationship with the environment. Such is the case of an eventual creative evaluation of the luminosity that reaches the sensor or some possibility of choosing the planes to be highlighted with greater or lesser clarity at a given moment of the action. As a technical object, it has an apparently small margin of indeterminacy, at least when capturing the image. However, let us not be fooled by a technicist interpretation of the indeterminacy margin of any technical object. As limiting as the manipulation of the strictly photographic aspects of image capture in our simple example may be (and what we call photographic here refers only to the capture of light energy by the thin sensor of a cell phone), other less mathematical issues can be taken into account, such as the fact that our imaginary camera is tiny and can camouflage itself among so many others found in all pockets and purses of passersby on the streets. Its size and ordinary existence make it an instrument for unique exchanges with the environment, creating other margins to be delineated by each encounter.

If we look at the universe of a film crew along the traditional lines of its history, we will have another sort of indeterminacy margin. As we know, cinematography is normally found in the hands (in the eyes and in the bodies) of a numerous group of people (camera operators and assistants, focus puller, machinists, gaffers and his assistants, the adored director of photography, among others) and machines, cables, lamps, etc., each with their immense technical and creative possibilities. When everything is prepared, when all the instruments

come into tune and start to vibrate in an orchestrated way with a view to a specific shot, what comes into play (in addition to the technical and artistic programming) is the way these bodies interact and articulate the entire technical ensemble, preserving its open character and sensitivity to the outside world. What is expressed is no longer the individuality of each team member, but a collective composition, within synergistic compatibility (SIMONDON, 2013), a *trans-individuality*, in which the possible oscillations of the indeterminacy margin of the relations between technical objects and their operators function as fluctuations of matter. That is, if we think of a banal camera movement, such as a traveling, we will see that there is a sharing of responsibilities between each team member and between each machine. Everyone has to communicate with everyone, in reasonable tuning, through a pre-determined path. The material result (the film) of this coordination bears all the nuances of the movements and technical capacities of the set, not only in its hypothetical potential, but also in what was actually possible to achieve at that exact moment of filming. The fluctuations of matter, therefore, are the result of this synergy capable of sensitizing the machine components (film or sensor) to start the image transformation process.

In order to have a clear idea about the variables involved in an ordinary film crew, we could recall here the opening scene of *A Torinói ló* (*The Turin Horse*, 2011), by Béla Tarr, in which the horse (the one saved from flogging by Friedrich Nietzsche) pulls a cart driven by a man[7] and, during the course of just over four minutes, he is accompanied by the camera on a long traveling. The day is cloudy, very windy, the landscape is black and white. The path that the horse has to traverse is barren, the trees have lost their leaves, the sky full of dense clouds is very low, the dirt floor raises a little dust and ends up mixing up with something like an intermittent fog. The horse looks tired, its movements are not elegant, it reveals a certain discomfort. Despite expressing the vigor common to horses, its fur shows its discomposure, sweaty and tangled in the harness that straps it to the cart. During the journey, the camera follows the movement of the three: cart, horse and man. Now showing the animal, now the man, now both. In some moments the camera is ahead of the set, showing it from the front, in others it remains on its side.

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[7] In an interview with Lídia Mello (2019), the actor who plays the man, Yános Derzsi, says: "I like everything about this film and the character, although it was very demanding, it was 4 years and 8 months of hard work. Sometimes I left the house at six in the morning and didn't return until midnight. When I got home I was dirty and dead tired. Only in training with the horse I worked for about nine months, and I had to use only my left arm and leave my right arm paralyzed to compose the character as Béla wanted. Everything had to be very precise, perfect for him."

Sometimes it is closer and other times it moves away to allow other elements of the landscape to enter the frame, such as the sun that, close to the horizon, appears in the background of the frame filtered by the thick layers of cloud.

The level of complexity in carrying out such a shot is extremely high. Let's think about its details for a moment. There's a whole long camera movement over rough terrain (a muddy road), which we're calling traveling. Defining this shift as a trivial traveling might not be the most appropriate, as the camera is not strictly on rails. If we are going to make the exegesis of the movement, we will see that the height of the camera is variable and its distance in relation to the cart path as well. Neither of these two features would eliminate the possibility of a *traveling*, but the greater freedom of approaches and distances of the camera in relation to the cart's path and its variations in height can only be achieved with the coordination of a *traveling* (or simply a platform on top wheels which, in this case, is the body of a truck) with a crane arm. This combination even allows the camera to approach the horse with a certain subtlety, without the proximity of the operator or other more robust supports. It is a traditional 35mm camera[8], therefore, it itself does not excel at discretion and, in situations like these, specific measures are needed so that the horse does not visibly get frightened. As we said before, it's very windy. It's very windy throughout the whole movie. Analyzing the scenes from this point of view and without any information about the filming, we could imagine two possibilities: either the production found a geographic location whose bad weather is totally predictable, or it invested in large fans. We could think of the two variables as distinct forms of organizing the technical set in which, in the first option, we would be at the mercy of nature, and in the second, our technical set would be larger and more complex. In this last[9] Hungarian filmmaker's film, we know[10] that some fans were used and, for more open shots, there is the support of a helicopter that makes wind at distances not feasible for common fans.

The visual atmosphere born from the association of these few (but complex) elements becomes efficient, not only through the choice of the frame's components – such as the desolate landscape, the horse's effort, the camera's displacement, the dust, the sun, etc. – but, fundamentally, because of the way in

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[8] Arriflex 535B.

[9] Béla Tarr announced *The Turin horse* as his latest "cinema" film. After 2011, two other non-fiction works were made: *Muhamed* (short film), 2017, 10 minutes and *Missing People* (expanded cinema), presented at the 2019 Vienna Biennale.

[10] Making of scenes from The Turin horse in *I Used to Be a Filmmaker*, 2013, by Jean-Marc Lamoure.

which all these ingredients are assimilated by the camera[11]. Filming took place in 2009, at a time, therefore, when digital technology was not negligible and, even so, the production option was to use black and white film[12]. Without going into the discussion of the values of the inevitable technological transition that seems to have already ended, we want to point out that the choice of a mature technical infrastructure (over one hundred years of history), being carried out by a team experienced in its methods, makes a difference in projects of that nature. However, in addition to the clear strategic gain, what this choice (the use of film) adds to *The Turin horse* becomes its touchstone. All the film is composed within a monumental range (for photographic parameters) between light and dark. What we mean by "monumental" is, for example, we can see in detail the sweaty dark hair of a horse filmed in low-angle shot (*contre-plongée*) with the cloudy sky and the sun in the background. The states of presence achieved through these variables make us feel the strong winds, the horse's fatigue, the difficulty of the path, etc. Everything is visible, from the darkest and most discreet corner to the most violent weather. No area is especially accentuated, not just by the optical choice of a wide depth of field, but particularly by the exquisite exploration of the negative's latitude within its extensive dynamic capacity.

By grouping all these elements into a single technical set, the one committed to the realization of *The Turin horse*, whose orchestration is in charge of Béla Tarr, we will see that the margin of indeterminacy of each nucleus (*traveling*: crane/truck, wind, negative etc.) is big. Which makes the union of individual sets even more complex. It would not be excessive to point out that the margin of indeterminacy should not be confused with the possibility of improvisation. In Béla Tarr there is no improvisation. Everything is programmed and rehearsed. Even if we can deduce that an object of high technicity must be indulgent enough so that we can use it properly in a need for improvisation, this is not what this is about. There are equipments that are more adaptable to improvisation than others, and the isolated fact that they have greater adaptability does not necessarily denote greater technicality. Thus, the indeterminacy margin of each grouping of the team (of the machinery responsible for the camera movement, consisting of the truck driver and the crane operator that he carries in

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[11] We could not shy away from saying that the atmosphere of the opening scene of *The Turin Horse* would not be the same without the presence of music composed by Mihály Vig, Béla Tarr's partner in all of his films.

[12] Kodak *Double-X* (5222). Factory ISO: 200 for tungsten light and 250 for daylight.

its body; of the helicopter flight tuning with all the *mise-en-scène*; of the camera team, *co*-responsible for its movement, through the exposure of the negative, the acuity of the focus and consequent sharpness of the image; or even of the agents of the action in the scene: the horse, the cart and its amateur coachman; not to mention the conductor and creator of the entire choreography) configures the power of the set of open machines operated by a group of highly specialized technical beings. Simondon's already mentioned words, "all open machines taken together presuppose man as their permanent organizer, as the living interpreter of all machines among themselves", echo in the opening scene of *The Turin horse* and help us to understand the complexities of the interrelationships between human-articulated machines.

In a final visualization of the network between bodies and machines, we can follow the words of Fred Kelemen[13], director of photography for the film, in an interview with *Cinema Scope* magazine: "How did you create the wind"?

> — We had a huge crew and they were all blowing. (Laughs.) We had some old wind machines and sometimes we used a helicopter. The machines would have to move with the camera, so this was yet another choreographed element. We didn't have wind machines big enough to blow the whole area, so, for example, when the camera is moving out of the house following an actor, we had to keep the wind machines following along so there would be no visible gap of calm in the shot as the actor is moving. Everything is moving, everything is part of a big choreography: the wind, the lights, the camera, the actors. (KELEMEN, 2011)

We can see, in Kelemen's words, that at all times the technical and human group in cinema faces unique challenges for each take. The result of the interrelationships of all individual feelings and aptitudes creates connections in the different layers that make up a shot and it is these links that contribute to the atmosphere proposed for each scene. In the impossibility of a fissure between the technical and the artistic or between the essentially human and the machine, cinema (and, consequently, cinematographic photography, its technical instrument par excellence) agrees with Simondon. And it could not be different, because, for him, "The destiny of aesthetic thought, or more precisely of the

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[13] Fred Kelemen has worked with Béla Tarr in three of his films: *Utazás az Alföldön* (*Journey to the Plain*, 1995, short film), *A londoni ferfi* (*The Man of London* , 2007) and *The Horse of Turin* (2011) . In addition to being a cinematographer, Kelemen is also a filmmaker and theater director.

aesthetic inspiration of all thought tending toward its own completion, is to reconstitute, within each mode of thinking, a reticulation that coincides with the reticulation of other modes of thinking: the aesthetic tendency is the ecumenism of thought" (SIMONDON, 2007, p. 199). In other words, cinema (a form of representation in which aesthetics, of course, is totally involved) provides a common ground (reticulation) in which the various forms of thought can manifest themselves. And not only that, its aesthetic tendency does not provide isolated manifestations of this or that principle, this or that belief, or this or that technical capacity, but an efficient articulation between all its components. That is, cinema, through the aesthetic inspiration that motivates it and the technical personality that gives it shape, is at the same time a technical and aesthetic object. It assimilates in an equivalent way the different individualities that inhabit this shared space and becomes a *trans-individual* aggregate.

> Transindividuality can be understood as a relationship that does not relate individuals by means of their constituted individuality separating them from one another, nor by means of what is identical in every human subject, for instance the a priori forms of sensibility, but by means of this weight [charge] of pre-individual reality, this weight of nature that is preserved with the individual being, and which contains potentials and virtualities. The object that emerges from technical invention carries with it something of the being that has produced it, and from this being expresses what is least attached to the *hic et nunc*, one could say that there is something of human nature in the technical being, in the sense that this word "nature" could be used to designate the remainder of what is original, prior even to the humanity constituted in man. (SIMONDON, 2007, p. 263)

Thus, Simondon shows us some ways to fully understand the different types of thinking (and intuitions) that make up the cinematographic act. With their support, it is possible to think how beings that work in the direct manipulation of the material and concrete world give body and substance to a film through technical knowledge and the affections that permeate it. With it, we can also see beyond the work itself, which is "less connected to a here and now" and more connected to the cycles of image-imagination-invention of *lato sensu* cinema itself. Any film carries with it this perpetuated movement of technical, oneiric, aesthetic, human etc. transformations. When we observe the sources that fed (and feed) the circuit of the constitution of cinema, we will see that they crisscross many of the frontiers of thought.

The film's reticulation is woven by a set of varied filaments that traverse time. And, as we walk towards the conclusion of our thoughts, we turn our attention again to Arlindo Machado, who highlights some components of this plot:

> It would be an extreme simplification to imagine that the machine is only a child of science or its technological derivations, owing nothing to other spheres of culture. The history of the technical invention of cinema, for instance, does not only cover scientific research in the laboratory or investments in the industrial area, but also a more exotic universe, which also includes mediumism, phantasmagorias (the projections of ghosts by a Robertson, for example), various types of mass spectacle (the magicians of fairs and kermesses, Reynaud's "optical theatre"), manufacturers of toys and table decorations and even charlatans of all kinds. It is a mistake to reduce the entire history of the technical invention of cinema only to its positive technical aspects, to scientific theories of perception and to the devices intended to operate the analysis/synthesis of movement. There is also an entire underground accumulation, a millenary desire to intervene in the imagination, whose beginnings go back to Plato's cave and to the magical explorations of the *camera obscura*. […] The technical invention of the cinematograph is not only the result of investments in the fields of science (Plateau, Muybridge, Marey, Londe) and industry (Edison, Lumière), but also of more heterogeneous experiences in the fields of magic, art, madness and mass fun. In every technical invention – and especially when it comes to the invention of "semiotic" machines – there is always the emergence of an imaginary dimension, something like its dark, passionate or anarchic side, normally neglected in "regular" textbooks of the history of technology. It is as if in the genesis of the machine itself, a dimension that we could call, for lack of a better term, "artistic", was already presupposed. (MACHADO, 1993, p. 35)

The artistic aspect of Machado's machine has, in our view, a very close connection with the ecumenical character of aesthetics pronounced by Gilbert Simondon. The cinematographic act, which here could be seen as the action of the set of all technical and human apparatus that give existence to cinema, would be an ecumenical act (and, without a shadow of a doubt, it is an artistic act) and, because it is ecumenical, conciliation between the sacred and the profane, between belief and science, between the technical and the artistic, is its existential condition. The "underground accumulation" of the "millennial will to intervene in the imaginary" coming from "individuals possessed by the imagination" (MACHADO,

1993, p. 35) is one of the central elements of (technical and aesthetic) creation and is visually present in the resulting images of its creators. Or, still in Simondon's words, "every strong image is endowed […] with a phantasmagoric power, since it can overcome the world of objective representation and the present situation, like a ghost called to cross walls" (SIMONDON, 2013, p. 14). Walls not only of different types of knowledge and ways of thinking, but, above all, of time. That is, the historical heritage of the numerous phases that cinema went through to become what it is (or what it is becoming) today acts not only as a linear and chronological evolution, but as an agglutination of the layers of time, of duration. Consequently, when we refer to the vital pulsations of cinema, to its vibration, we are not restricting ourselves to the merely visible aspects of an oscillation of light energy or the mechanical intermittence of its projection. We are referring to the various strata that make up cinema, which include both the technical history of images and the assimilations of this journey by men; in a constant flux which is that of this necessarily technological and indisputably human art.

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