

The becoming of media: technical progress and the constitution of cinema's ontology

Gabriel Menotti²²

Introduction

Exploring the relational nature of cinema, this paper means to show that the conventional identity of the medium does not exist apart from the technological changes of its underpinnings, such as the digitisation of audiovisual data and the proliferation of electronic screens in domestic spaces. This identity is defined precisely by the means in which the cinematographic circuit organizes emerging technical processes and thus reorganizes itself, as it strives for operational coherence. To understand the development of cinema technology, I will analyse the history of the medium in the light of Gilbert Simondon's theories, by which technical reality is characterized as a form of inter-mediation between human and nature and not as being opposite to culture (1958: 11). In doing so, I will portray the *technical becoming* of cinema, from which its technology emerges as cinematographic.

Roughly speaking, becoming is the means through which a technical object acquires concrete identity and an autonomous mode of operation, thus defining itself in a way that makes it different from other technical objects (Simondon, 1958). Paying attention to Simondon's definitions, I propose that the apparent demise of cinema caused by digital computation would correspond to a discontinuous but major improvement of the cinematographic circuit, through which the new technologies would be accommodated while the medium's conventional identity would be reformed in order to accept them. Thus, once the new technologies become properly localized within the circuit and all of the medium's conventions are reformed, it would be as if cinema had never changed, or had simply been developed in order to *become* what it should always have been.

²² Gabriel.menotti@gmail.com; Goldsmiths University of London.

Considering the technical becoming of cinema, one could say that it is not the mere novelty of technology that poses a problem to the conventions of the medium, but the disarrangement of old elements provoked by the localization of this new technology within its circuit, which disrupts the established correspondences between apparatus and practices. For instance, digital technologies are already largely part of cinema: they are used extensively in movie post-production, being a standard intermediate for both commercial and independent moviemaking (Rodowick, 2007: 8). Nevertheless, a practice such as p2p film piracy can challenge what is normally considered the ontology of the medium because it uses computers to actually *distribute* movies, *dislocating them* within the cinematographic circuit. This dislocation demands the set up of particular software applications and platforms to integrate PCs into processes of movie circulation, therefore rearranging correspondences both internal and external to cinematographic apparatus.

While the early pirates had to work hard to settle these correspondences, nowadays they seem to have become crystallized within the circuit's standards: the necessary video codecs and applications come pre-installed in every playback device. Digital movie files can be easily acquired from online services that rent or sell them to the domestic market (like the iTunes store) or from companies that transmit them by satellite to screenings venues (such as the Brazilian Rain Networks). Likewise, cinema architecture is prepared for it: digital projectors can be found hanging from the ceiling of most theatres, directly connected to their projection booths and sometimes to networks of online distribution; cables are incrustated in the walls, nowhere to be seen. The apparatus are all in place and what were once laborious procedures have become effortless synergies. Thus the rearrangement of technical processes seems to have been normalized as a part of the medium's apparatus.

The following section will demonstrate how this normalization of technology is not imposed from the outside, but driven from within the circuit. It will also show that, as it congeals technical processes into mediatic operations, the becoming of the medium suppresses certain potentials of technology, creating an "invisible part" of cinema in which dynamics of specification are carried out. The medium is connected to other media and fields of creation through this invisible side. Examining these connections, the second section of the paper will supplement the althusserian concept

of *apparatus* with the foucaultian notion of *dispositives*, in order to underscore all of the suppressed processes that allow and sustain particular cinematographic practices.

1. The history of cinema and its technical becoming

After an emerging technology is localized in the cinematographic circuit and made proper to cinema, the apparatus and practices it entails become normal to the medium. This ensuing normalization allows us to trace the continuous identity of cinema in history, notwithstanding the technological metamorphosis of the medium. In that sense, cinema could be understood in terms of Simondon's definition of a technical object, which is not a given, but "a unit of [its own] becoming" (1958: 19).

Simondon has revealed the complexity of technical objects' mode of existence in his work. For him, these entities are not mere assemblies of material, nor are they self-sufficient subjects (ibid: 12); rather they are relational systems characterized both by the resonance of their inner elements and by the way they are integrated into the outer milieu. By stating that technical objects are "not such and such a thing [...], but something that has a genesis" (ibid: 18), he implies that they possess a fundamental historical dimension. Therefore, instead of speaking about the identity of technical objects, Simondon rather speaks in terms of their *becoming* – the process through which a technical object is rendered *concrete*.

In a similar vein, the aspects of specificity that characterize cinema could be understood as the result of a continuing *dynamics of specification*, which negotiates the medial meaning and value of technological developments. Following this lead, I intend to approximate the idea of specification to Simondon's concept of becoming, in order to highlight the fundamental historical dimension of the cinematographic circuit, which encompasses both continuous and discontinuous improvements.

1.1. The normalization of technology according to the genesis of the medium

Simondon has specified three different stages in the becoming of a technical object: the element, the individual and the ensemble. Seen through his framework, cinema would correspond to an ensemble: a technical object that has attained a greater level of concretization, in which technique can become firmly integrated into

culture (1958: 16). The evolution of the object towards this stage is not driven by increasing automation – which for Simondon represents “a fairly low degree of technical perfection” that has “economic or social, rather than a technical, significance” (ibid: 13). On the contrary, it depends of a certain *margin of indetermination* that makes machines sensitive to outside information, enabling them to be articulated together (ibid: 13). It is in these connections between machines that Simondon places the human being, comparing him to a *conductor*: “it is through him that the members of the orchestra affect each other's interpretation” (ibid: 13).

While pure automation is sufficient to produce an industrial device with its own particular logic, it does not necessarily create margins that allow technical elements to be coordinated into an ensemble. This distinction can shed a new light on the competition of moving image apparatus that preceded cinema. For instance, while a device such as Thomas Edison's *kinetoscope* entailed the successful automation of earlier contraptions, this characteristic was not enough to emancipate it from the pre-cinematographic milieu, so inaugurating a new circuit. Albeit more expensive and sophisticated than other optical toys, the kinetoscope could be handled within a regime of circulation similar to theirs, being shown as a curiosity in exclusive machine parlours and amusement fair-like situations. In that sense, the problem of Edison's invention might be precisely that it was *too automatic*, replicating the one-to-one mode of engagement of its forerunners and integrating the image's physical support into its chassis. The kinetoscope presented itself as a self-contained commodity which could only be modified with difficulty, but could very simply be transported through the already established media underpinnings without interfering with their technical organization.

If the kinetoscope seemed to lack any substantial indetermination, the Lumières' film projector, on the other hand, was full of it. When the *cinématographe* was first created, it had no proper place or audience. Hence, it occupied spaces where it was not meant to be – such as cafés and shops – and borrowed their public (Machado, 2002: 78). Moreover, for the device to work, these spaces had to be constantly adapted to the medium (e.g. keeping the line of projection unobstructed and maintaining the lighting at a low level). Within a few years, the makeshift public would be educated to constitute a movie audience and the spatial adaptations would

be crystallized in the architecture of movie theatre – coincident developments that I have analysed in a previous work (Menotti, 2007). This may lead to the impression that the *cinématographe* co-opted the local public and mobilized the space around it, giving birth to cinema by its own effort. From the perspective of Simondon, however, what happened was the opposite: the projector was fixed at the origin of the medium *because* the adjustments it required from the external milieu were later developed into synergetic correspondences. This normalization, which conflates historical dimensions with conventional ones, could be seen as a primary result of the *genesis* of the medium.

Genesis is the evolution that a technical object undergoes, through which it is made concrete; it becomes “a system that is entirely coherent with itself and entirely unified” (Simondon, 1958: 21). In its most primitive form, a technical object is an abstract organization of *elements*: “each theoretical and material unity is treated as an absolute that has an intrinsic perfection of its own that needs to be constituted as a closed system in order to function” (ibid: 20). Such a statement could be used to describe not only the first Lumières’ screenings, in which the “intrinsic perfection” of the projector had to be arranged in relation to that of the café space, but also the early use of p2p networks for film piracy. In the detached elements it is already possible to identify particular physical attributes that would constitute the materiality of the medium. However, at this stage of becoming, the closure of circulation still depends of processes seemingly external to it. On the one hand, for the organizers, it involved finding a power source, installing the projector and the screen, connecting the appropriate cables, and preventing people from sitting in front of the projection light. On the other, for the audience, it meant paying attention and adopting a behaviour that they were not accustomed to, at least not in a café. Therefore, at this first stage of becoming, the physical aspects of cinema could already be specified, but not its mode of operation.

As the technical object evolves, the contingent arrangements that allow its primitive functioning are “fixed and crystallized in functioning structures” (ibid: 18). The processes that used to coordinate the disconnected elements are supplemented by a fixed mode of usage by these structures, giving rise to operations such as “moviegoing” and “film screening.” According to Simondon, usage “brings together

heterogeneous structures and functions in genres and species which get their meaning from the relationships between their particular functions and another function, that of the human being in action" (ibid: 18). By the means of these functions, the object seems to attain a concrete *individuality*. In terms of the aspects of medium specificity, this could be translated as the establishment of automatisms such as the mediatic apparatus and practices. This can be perceived in the consolidation of a place such as the movie theatre, whose architecture incorporates the actions previously necessary for projection.

The concretisation of technical objects increases towards the ensemble, in the final stage of which each unit becomes attached to the rest by "reciprocal exchanges" in a way that "it cannot be other than it is" (ibid: 19). In the ensemble, individual principles of operation seem to resonate into one another, according to multiple causes that are external to the different unities, but internal to the ensemble. In that sense, one can appreciate the growing correspondence of operations such as "screening" and "filmmaking" due to standards both physical (such as film gauge and frame rate) and logical (like the movie's average duration and narrative patterns) that become ingrained into their respective apparatus. Attaining such a level of concretization, "technical reality becomes regulatory" and therefore "can be integrated into culture, which is itself essentially regulatory" (ibid: 16). Thus the ensemble also seems to bring about the paradigm of understanding that, promoted by regulating bodies and schooling institutions, provides both methodological and metaphysical coherence to cinema.

While the standards fixate correspondences between different units, they seem to circumscribe a margin of indetermination that is internal to the ensemble. In other words, these standards leave some room for the units to be moved within the ensemble and affected by human agency, through which the whole can achieve meaningful exchanges of information with other ensembles. When it comes to cinema, the pivot of such open interventions is none other than the movie. It is by the means of movie circulation that apparatus communicate with one another in the cinematographic circuit, and even with other media and fields of creation. Hence, the technical indetermination of cinema seems to be nothing other than movie circulation.

In the concretization of cinema as a technical object, it is possible to notice an escalation of the medium's overall resistance to change, as apparatus become fixed and practices congealed, streamlining the meaningful exchanges into the transports of the movie. It follows that cinematographic operations are increasingly restricted to the limits of the movie's means of circulation, such as the final cut. In that sense, as the medium becomes more technically concrete, its operation seems to become more abstract: from the *presentation of the cinématographe in different venues* it moves on to the *projection of films in theatres* and finally to bare *movie consumption*. Thus abstracted, the means of circulation seems to be turned into a norm autonomous from technique, and even preponderant to it: emerging apparatus are localized within or without cinema according to their compliance with this norm. When a device such as the TV appears, it first communicates with the established circuit not by the means of a direct connection to its apparatus, such as the film camera or the projector, but through its capacity to handle the movie's means of circulation.

More than defining *which* apparatus and practices are cinematographic, the means of circulation defines *how* they can be so. This explains why technologies that would otherwise disturb the means of circulation become integrated into the circuit as its supplements. It also clarifies the kind of competition that the cinematographic institution sees in a practice such as digital film piracy, which attempts to create "cinematographic" exchanges in places where there should only be standard connections between apparatus. Optimistically, the drive of film piracy could be explained in terms of what Felix Guattari – writing about free radios – designated as "a post-media era in which the media will be appropriated by a multitude of subject-groups capable of directing its resingularisation" (Goddard, 2011: 9). In other words, as a way to keep the negotiation of the specificities of the medium open to its public. This is precisely what seems to be avoided by the incorporation of digital technologies into movie circulation as described in the introduction to this chapter, in which new technical processes become localized in a way that preserves the definitions of movie production and consumption – the former as the manufacture of an autonomous set of moving images; the later as a purely visual operation. Thus the normalization of emerging elements in relation to the established apparatus and practices seems

relative to the localization of certain technical processes within the circuit, along with their suppression from direct mediatic operation.

As new technologies go from disruptive to normal and become cinematographic, how are they really changed? More importantly, how is the medium changed? In order to examine these transformations, I will now turn my attention to the contingencies that are suppressed in the course of technical genesis.

1.2. The invisible side of cinema and the primacy of multimedia

Simondon states that the evolution of technical structures is driven by their own internal necessities (1958: 21). Upon reaching the stage of ensemble, it seems that these necessities unfold in a topography apparently external to the object, but which overall is consequent to it. In that sense, it would be more than symbolic that the Lumières' projector also worked as a camera (Cubitt, 2004: 32). This bilateral operation would confirm the originality of the *cinématographe*, which already contained a correspondence between the operations of filmmaking and screening, prone to be developed into that between movie production and consumption. Thus, the *cinématographe* would have led to projection booths, film studios, distributing facilities and the like.

It is in this light that the ensemble should be considered as something beyond the mere units from which it is constituted. These units are symptomatic of a logic of territorialisation that expands and sustains technical becoming. As Simondon puts it, "it is not the production-line which produces standardization; rather it is intrinsic standardization which makes the production line possible" (1958: 21). In that sense, the standards that make apparatus possible could be related to the dynamics of specification that allow for the coherence of the medium's underpinnings. While upholding cinematographic operations, the genesis of cinema also carries on the medium's continuing specification.

Considering the similarly technical character of both dynamics of specification and cinematographic operations, one may be led to ask why some of the ensemble's necessities not only become fixed, but are *fixing*, while others are not only open for the public, but actually *require its engagement*. In fact, there seems to be no

fundamental difference between these two classes of processes. Their separation could be explained according to the technical synergies that grow in the course of the medium's genesis (ibid: 30). It is by means of these synergies that the medium either resists or accepts change. Through them, technology becomes the opposite of a mere "physical translation of an intellectual system:" it "approximates the mode of existence of natural objects" (ibid: 46).

Nothing describes the naturalization better than the famous Kodak slogan from 1888: "*you press the button, we do the rest*" (Sontag, 1979: 53). This means that the company ("we") took over a number of processes that until then were an inherent part of the photographic operation, reducing the engagement with the apparatus to the emblematic point-and-shoot. This was made possible because of a new camera model the company was promoting among the general public, which used a roll film carrier. This object could be easily loaded into the camera and rewound once completely used. It included in its costs the developing and printing services, which were provided by the company itself: the customer just had to send the camera back to Kodak in order to receive the finished pictures a few days later, along with the camera loaded with a new film. Later versions of the advertisement substituted the slogan for "*it does the rest,*" conveniently imputing the suppressed processes to the film carrier, whereas this object did not actually do any of "the rest."

Such advertisements indeed imply that photography, which involves dealing with the automatism of the apparatus, necessarily depend on dynamics that are external to the device. Kodak had these dynamics streamlined in a large industrial facility, which was kept away from the customers. In its place, it presented the film. With this substitution, the practice of photography also became streamlined; it was promoted as the mere capture of images, as though it was a pure visual operation. One certainly cannot ignore how the *advertisement* itself takes part in this transformation of the public dimension of the practice. The logic of figurative representation behind the photographic apparatus is thus reinforced; concomitantly, the film carrier is isolated as an artefact that stands for a series of fundamental processes of information. Abstracted, these processes are not perceived in terms of the technical infrastructure they demand, but as a certain rhythm and scale imposed

upon photographic practice: the standard number of pictures a film can hold and the time it takes to send the film to Kodak and receive the pictures back.

This logic can be transported to cinema, which is based on principles similar to photography. On these grounds, it is possible to understand why a digital movie screening in a conventional theatre does not seem to break with the tradition of the medium, even though it discards what is normally considered the most fundamental aspect of cinematographic practice: film. The fact is that the digital screening streamlines all of the processes involved in this disruption, disguising them so that the disappearance of film goes unnoticed. The computation is running smoothly in the projection booth; high-quality audiovisual data arrives by an encrypted Internet connection, and the projectionist has been previously trained in the operation of all these devices. The audience does not have to wait for sound speakers to be placed, nor does it risk getting a glimpse of the machine's operational system in the middle of the exhibition because the antivirus' license has expired. Most of those viewing the movie will never know that some movie projectors run on a Windows system which is similar to the one they have in their personal computers (De Luca, 2005: 159). The conventional mode of engagement of the public with the movie is thus promoted; the internal margins of indetermination of cinema are preserved. On the other hand, what is *behind these margins* has changed completely.

The proper operation of the cinematographic apparatus depends on the conscious engagement of the public. In the words of Jean-Louis Comolli, one of the late apparatus theorists, "there is no spectator other than one aware of the spectacle" (1985: 757). Expanding on the socio-economic dimension of cinema, Sean Cubitt has affirmed that "audiences constitute the media that constitute them in a dialectical antagonism of mutual creation, mutual annihilation, and that this is entirely true to the shifting nature of the commodity" (2004: 10). Examining the technical genesis of the medium, one can see how limited this awareness is, and so is the mutual constitution of audience and media.

In as much as movie consumption might presume movie production and vice-versa, neither of these activities fully acknowledges the processes out of which they are constituted, nor the structures that are fixed between them. The awareness of the public seems attached to a certain part of cinema: devices such as the screen and the

camera; practices such as shooting and montage. Another part, which Comolli dubs the *invisible side* of the medium, remains largely ignored: negative film, chemical processing, subtitling, projection, and so on (1985: 745). Not surprisingly, the elements that are “invisible” within cinema are also those that fall behind the margins of indetermination that are internal to the circuit – in other words, the “predetermined” structures and dynamics that are a condition for movie circulation, and not the movie circulation itself. In this way a division between “structural” and “symbolic” processes is promoted. On the one side, there are the underpinnings of the medium and its dynamics of specification; on the other, cinematographic language and the operations of movie circulation.

Is it telling that, almost 30 years after Comolli’s text, the visible side of cinema has remained pretty much the same. Maybe the only significant change is the attention now given to digital compositing and special effects (see, for instance, Rodowick, 2007: 6). Meanwhile, a lot has been added to the medium’s invisible side: release windows, video codecs, online networks, copyright negotiations and marketing campaigns, etc. In public debate about these elements, they are invariably considered important *to* the medium. However, this simultaneously implies that they are not important *as* the medium. These new issues seem to affect the movie business, historical preservation and cultural significance, but not cinema’s ontological definition or aesthetic possibilities, at least directly. This means that the medium’s dynamics of specification remain alienated from everyday mediatic practices, in places that are completely external to them – such as governmental bureaus, software companies, darknet forums, courts of law and university yards.

The alienation of such dynamics hints at the complexity of the circuit’s borders, which rationalize technological changes within and without the medium. In that sense, so-called “anti-cinematographic” devices have since long been part of cinema. Even before the complete substitution of the movie’s physical support, the “new” technologies are already old as far as the medium is concerned. They started by influencing its operational principles and means of circulation. Although video was not regularly used to record feature footage until recently, it has had a strong effect in the practices of shooting and editing since the 60s because of the incorporation of the video assist to the film camera (Machado, 1988). Likewise, it was in response to early

competition with TV that some characteristics considered intrinsic to cinema, such as the screen size and horizontality, have been intensified (Greenberg, 2008: 138). Certainly, it is not necessary to wait for the complete disappearance of celluloid film for cinema to become computerized: virtually every movie since 2004 has passed through a digital intermediate (Rodowick, 2007: 7-8).

By paying attention to these examples, we come closer to understanding the heterogeneous nature of cinema. It means that so-called “multimedia” or “transmedia” processes coexist within the single medium. More precisely, they exist even prior to the concretization that separates the dynamics of specification from cinematographic operations. What still does not exist is a parameter to qualify these processes as cinematographic, and even less as multimedia. Before “proper” digital cinema appeared, there were peer-to-peer networks, codec packs, subtitling communities and so on. After digital cinema, there is just movie distribution and exhibition, which must comply with appropriate standards. In other words, once the conventions of the medium are reformed, these processes are made contingent, suppressed from mediatic operations or cast out into other fields.

Along with the suppression of technical contingencies, the full possibilities of the technology are also denied. Within cinema, processes such as developing negatives, transferring files, advertising a screening and setting up a projection are just a structural burden; these operations can only fulfil any poetic potential they might have outside of the cinematographic circuit. Whenever such potentials are to be acknowledged within the medium, it must be through its normal means of circulation – that is, turned into a movie. If such acknowledgement is not possible or sought after, the practice often finds its place in some sort of “expanded” field or in the art world.

In conclusion, I hope I have demonstrated that the genesis of cinema separates technical processes into the dynamics of specification and mediatic operations. The synergies that constitute the former pose a certain resistance to the normalization of new technologies within the medium, as long as these technologies are not rearranged according to this separation. The conventional cinematographic apparatus and practices are kept in place at the expense of such displacements of emerging elements. In that sense, the apparatus should not be considered the cause of the medium’s becoming, but one of its *continuing consequences*. As Simondon explains, the machine

is a result of organization and information (1958: 16). Thus, just as a movie results from and stands for its circulation, the apparatus result from and stand for the dynamics of specification that are consolidated by the becoming of cinema. In that sense, apparatus are likewise inferred from the superficial effects of the circuit, as a sort of background over which the movie as a figure stands, or the material from which the movie as a form is made. Naturalized, the conventions behind this division remain overlooked.

1.3. How cinema is constituted in history

Technical synergies can be acknowledged as the essential drive of the medium's becoming. As they get established, separating the dynamics of specification from processes of circulation, these synergies produce the mediatic coherence of the circuit. They do so by abstracting some essential processes from public engagement, while revealing others as specific to the medium. This creates an "invisible side" to cinema, which grows exponentially as new technologies are normalized within its circuit.

This subsection examines in further detail the ways in which this normalization of technology happens. In other words, it addresses how technological change can be absorbed by the medium and rationalized through its genesis. This will allow a more comprehensive perspective about the differences between the use of digital technologies in digital film piracy (which goes against the medium's conventions) and their current standardization (which preserves these conventions).

Once again, I will resort to Simondon's framework, which establishes that technical progress occurs in a twofold rhythm, alternating *continuous and minor improvements* with *discontinuous and major improvements* (1958: 32). Whereas the former preserve the organization of the technical object, merely "lessen[ing] a disadvantage which could not be converted into a positive aspect of the functioning of the whole" (ibid: 33), the later provoke its complete rearrangement, "increasing in an essential manner the synergy of functioning" (ibid: 34).

Minor improvements would account for those that, respecting the established positions of the cinematographic apparatus, facilitate their connection. As an example,

Simondon cites the “self-lubricating bearings” that would reduce the attrition between different parts of an engine, making it run smoothly (ibid: 34). One could propose a similar definition to the minor improvements of cinema technology: they are those that lubricate the circuit so that the normal processes of movie circulation become progressively unobstructed. Examples would include higher resolution cameras and new codecs, which increase visual fidelity and favour the production, distribution and consumption of the movie as a visual form (i.e. without altering its definition).

However, as they diminish the “harmful effects” of residual oppositions between already localized processes, minor improvements do not contribute to their synergetic coupling, which would eventually lead to the concretization of a technical whole. In fact, Simondon proposes that minor improvements *prevent* this concretization, by “blind[ing] us to the real imperfection of a technical object” (ibid: 34). Paying attention to this point, it could be said that the rationalization of digital technologies only in terms of the visual resolution of cameras and screens overshadows the most critical effects that these technologies may have on cinema. While the industry is concerned with these minor improvements, the real transformations that digital technologies could effect on the processes of movie circulation are avoided.

Major improvements, on the other hand, would transform the scope of conventional mediatic operations, redefining the limits between movie production, distribution and exhibition. This rearrangement of circulation, followed by fundamental changes in the structure of the circuit, would promote further concretization of the technical ensemble. This means that, besides allowing for the localization of a new technology within the medium’s circuit, major improvements would reform aspects of the specificity of the medium so as to comply with such localization. For that to happen, Simondon states that “what was an obstacle should become a means of achievement” (ibid: 25). The technology that was disrupting the organization of the medium becomes integrated into its dynamics of specification in such a way as to push its evolution forward.

Thus major improvements would account for all of the technological turnovers that have changed the nature of cinema, such as the active integration of sound and colour to film or the reform of theatre architecture in reaction to electronic

transmission. These turnovers represent the resolving of technical antagonisms and their ensuing normalization in the course of the medium's genesis. In this sense, they also represent the transformation of a synchronic tension between different models of cinematographic operation into the diachronic development of media technology. Once digital computation is properly localized within the cinematographic circuit, it will probably inaugurate another stage in this evolution of the medium. When this happens, the idea of "digital cinema" will be turned into an oxymoron that highlights the historical condition of a previous "analogue cinema," much as "sound cinema" does to "silent cinema."

By the means of major improvements, the medium seems to become what it was always meant to be. The most drastic changes in its underpinnings are thus accepted as the ultimate fulfilment of its ontology – even if the same changes had earlier seemed to threaten this ontology. While the reason these improvements are *major* might be obvious, it may still not be clear how they can be *discontinuous*, since they seem coherent with the medium's technical evolution. In fact, as I intend to demonstrate in the following paragraphs, these improvements are only made coherent through the perspective created by the evolution of the medium which they provoked.

I could start by unpacking Simondon's declaration, which characterizes a major improvement as a double movement: in order for an *achievement* to occur, an *obstacle* must first be highlighted. In other words, there needs to be some element that brings the antagonism between technical models to the surface of the medium, so that this antagonism can be resolved. Framed according to this formula, unauthorized practices like the p2p sharing of films should be understood not in opposition to the later standardization of digital technologies in cinema, but actually as leading it. This seemingly paradox can be made clearer by the means of a comparison between the reforms of mediatic conventions and the vicissitudes of normal science. In order to do this, I will correlate Simondon's framework to Thomas Kuhn's ideas about scientific progress, demonstrating how the development of media technology is understood through cinema's own epistemological conventions (meaning both the everyday engagement with the medium and the analytical discourses that make sense of it).

Kuhn states that the practice of normal science, bounded by the institutional directives of its paradigm, could be compared to a puzzle-solving enterprise, in which

experiments always depend on “the assured existence of a solution” (1996: 37). Thus, normal science “does not aim on novelties” and “when successful, it finds none” (ibid: 52) – an approach that drives practitioners away from questioning the limits of the paradigm. In that sense, normal science would be analogous to Simondon’s minor improvements, which overshadow technical antagonisms and prevent any fundamental transformation in the underpinnings of the medium.

In order to escape from the self-absorbing loop of normal practice, the scientific field has to go through a *revolution*: a complete transition from one paradigm to another (ibid: 12). In a way similar to a major technical improvement, a scientific revolution has a critical outcome: it simultaneously produces a new gestalt over the field (ibid: 112), transforms the perception of its history (ibid: xi) and rebuilds the commitments of professional groups (ibid: 181). Examining the structure of a revolution, one is in a better position to describe the constituents of the discontinuity of the major improvements. The transformation of a paradigm does not happen all at once, in a “eureka moment,” as the myth of scientific discovery would have it. It is a long-term process brought about by *anomalies*. Anomalies are the inadvertent results of scientific experiments that violate the expectations that are “implicit in the design and interpretation of established procedures” (ibid: 59). In other words, they contradict the paradigm, exposing its limits.

In cinema, anomalies would account for modes of engagement with technology that reveal the conventionality of mediatic practices and apparatus – for example, when p2p filesharing shows that computer networks could have other cinematographic uses than being a channel for film reviews. As it does so, anomalies not only appear to highlight the hidden potentials of the technology, but also challenge the established aspects of the specificity of the medium. As anomalies recur, Kuhn says that they lead to a *crisis*: a scenario in which “the existing institutions have ceased adequately to meet the problems posed by an environment that they have in part created” (ibid: 92). In a crisis, the established circuit seems no longer to be able to preserve the norms in which its organization is based.

For movie circulation, which like science is what Kuhn characterised as a community-based activity (ibid: 179), a crisis only happens when anomalies acquire a certain public dimension. One person alone, ripping movies from DVDs and storing

them in her personal computer, does not pose any threat to the specificity of cinema. Thousands doing the same thing and exchanging the results, on the other hand, probably do. In that sense, a crisis becomes marked by the proliferation of what Michael Warner calls *counterpublics* – collective participants of the public sphere that are “defined by their tension with a larger public,” and whose “exchanges remain distinct from authority and can have a critical relation to power” (2002: 56). A similar notion of *counter-apparatus* could be used to address those structures that, while participating of the cinematographic circuit, are defined by their tensions with the norms of movie circulation, such as the filesharing networks.

However, at the same time as they challenge the medium’s norms, such counter-apparatus could be seen as essentially propositional. Just like a counterpublic, they “[enable] a horizon of opinion and exchange” (ibid: 56) that would account for the plurality of “speculation and tentative hypothesis” that Kuhn states is necessary to give rise to a new paradigm (1996: 61). In that sense, a practice such as p2p film piracy is not a mere critique of the economic model of the medium or of the social constraints of movie distribution, but an attempt at another cinema, whose conventions would be able to accommodate certain potentials of digital technologies within its specificities.

The proliferation of counter-apparatus would explain the discontinuity involved in the introduction of major technical improvements. Just as a scientific paradigm must be broken in order to assimilate anomalies and re-enable normal science (ibid: 53), the cinematographic circuit must be thoroughly disarranged in order to accommodate the new technologies and reorganize movie circulation. It is as if the circuit had to be *liquefied* before crystallizing once again. What follows is an overall depletion of the medium’s impedance. Nevertheless, in the aftermath of a so-called “revolution,” a new paradigm appears as the natural heir to the outdated one. Impedance rises again, as the technical ensemble becomes further concretized. Anomalies that once put the medium at risk are now fully integrated into its circuit, preserving the specificities of the medium. The preceding crisis is seen as an expected modification of the medium’s individuality occurring in the course of its technical genesis (ibid: 18).

Such is the prerogative of history: as soon as the messianic promise of revolution becomes *actual*, it is immediately *secularized*, “marking human time without fulfilling it” (Buck-Morss, 1991: 242). At such a moment, extraordinary

possibilities that were available during “revolutionary now-time” become lost. Hence, the technical evolution of cinema is as exclusive as it is cumulative, and can only be understood if both perspectives are joined, which enables all that is being left out of the medium to be considered: those cinemas that have been despised, forgotten or isolated in “expanded” fields of their own. In practical terms, this would mean understanding cinema “in the light of the openness promised by early film” and see its specificity as *self-differing* (Krauss, 1999: 44).

Walter Benjamin believed that social forms and technological processes are closer to a *Messianic dimension* in their birth as well as in their decay (ibid: 41). These moments allow a double focus that “illuminates both industrial nature’s utopian potential and, simultaneously, the betrayal of that potential” (Buck-Morss, 1991: 245). Paying attention to the structure of scientific revolutions, one could say that this is because, during these breakthroughs, the hidden side of the medium is brought to its surface. In other words, in the course of major technical improvements, the dynamics of specification suppressed within the circuit are made public. Thus, before the medium that-is-to-be is defined, one has a glimpse of other media that-could-be – all the failed cinemas that, after the period of crisis, are prone to be rationalized by the means of the progressive history of the medium.

These tentative cinemas, based on the anomalies that are suppressed from the medium once its conventions are reformed, could equally be appreciated as uprisings, in accordance to Hakim Bey’s concept of *temporary autonomous zones* (T.A.Z.) (1991). In its failure to fulfil revolutionary intentions, an uprising “suggests the possibility of a movement outside and beyond the Hegelian spiral of that ‘progress’ which is secretly nothing more than a vicious circle” (ibid). As a violation of the “law” behind the medium’s technical evolution, a T.A.Z. refutes the apparatus that stands both as its historical result and primary cause. In that sense, p2p film piracy momentarily allows the practice of cinema to be utopian exploration. In doing so, it reveals the conventional circumstances of the medium – the same reality that cinema, projecting its own history, suppresses: that its apparatus are not the cause of the specificity of medium, but the by-product of its specification.

2. Apparatus and *Dispositives*

The effect of cinema should not simply be understood as the production of a presence (that of the movie), but mainly as the suppression of different other ones (of the many processes that constitute circulation). What this implies is that the actual experience of the medium perpetuates the separation between its visible and invisible processes and, therefore, its specificity. The effect of every cinematographic experience, situated and relational, is to sublimate circulation even in its most obvious traces (e.g. scratches in the film; subtitles; letterboxing; etc), projecting the movie as a stable, autonomous form. Its intended result is to create in the audience the impression that they are watching precisely what the author has created, which is the same thing that other people had watched before and will always watch, across all the nations, ages and technological platforms. But are they?

The projection of the movie as an autonomous form depends on the awareness of its situation as the cinematographic apparatus. The existence of the movie is never *by-itself*, but always *negative to* the cinematographic underpinnings. In that sense, the apparatus is never suppressed from the mediatic experience, but inferred from it along with the movie. However, it is always inferred as a sort of abstract, ideal mechanism, despite the most intrusive burdens of specification (e.g. the theatre's isolated location, the unavailability of codecs; etc). As Flusser explains, the word "apparatus" comes from the Latin verb *apparare* ("to prepare"), and can be roughly translated as "an object which makes itself ready for something" (2000: 21). Thus the term implies that this "something" existed before technique – an operational reason beyond the cinematographic structures, which would enable and organize them.

Nonetheless, what an activity such as p2p film piracy demonstrates is that cinematographic apparatus are no more abstract than the movie is autonomous. They have no operational reason outside of the medium's evolution: like other aspects of its specificity, the apparatus are produced by cinema's becoming, which culminates in every single experience of the medium. This means that apparatus are not abstract, but *abstracted*. They do not provoke cinematographic experience, but are prompted by it.

Essentially informed by the medium's technical progress, an apparatus is not able to be critical about it. That is, it cannot account for its own situation: the complex arrangement that, coordinating visible and invisible processes, produces the apparatus and suppresses contingencies so that it appears natural. If both movie and apparatus are secondary to this mediatic dynamic of presences, then what exactly provokes the experience of the cinematographic work? For instance, how to call the different elements in the activity of film piracy that can make it *cinema* instead of another media? In other words, how to identify the particular synergies and connections within the circuit that, cutting across various apparatus and practices, result in a given cinematographic experience?

To analyse the constitution of these experiences further, it is useful to draw from the work of Siegfried Zielinski. In an attempt to localize modern media in a larger history of "audiovisions," Zielinski evokes the Foucaultian term *dispositif* to identify the arrangements in which audiovisual discourses are reified (1999: 18). In such arrangements, "the audiovisual overlaps other specialist discourses and partial praxes of society, such as architecture, transport, science and technology, organisation of work and time, traditional plebeian and bourgeois culture, or the avant-garde" (Ibid: 19) – in other words, mediatic operations are situated amidst the various processes that constitute its circuit.

For Zielinski, *dispositives* provide media studies with a more comprehensive perspective than "isolated types of apparatus" (e.g. devices such as a praxinoscope, film, the TV monitor, etc). Because a *dispositif* is "an identifiable historical concretion where fractures and fissures are visible" (Ibid: 18), one could say that it allows us to grasp the outlining of the internal margins of invisibility that result from the medium's technical progress. In other words, a *dispositif* makes perceptible the interactions that constitute apparatus and keep them separate from movies, as well as cinema from other media and "partial praxes of society."

The term *dispositif* also carries an interesting etymological appeal. It is rooted in the Latin verb *dispositus*, which can simply mean "to arrange." Hence, while "apparatus" evokes an a priori reason, *dispositif* focus on the present organization of things. It turns one's attention from the isolated elements to the way they are situated in relation to one another in time and space. Given that perspective, one is able to

contemplate not only the overt interactions between the given elements, but also the hidden connections that, running through ancillary fields and resorting to seemingly collateral processes, sustain the given elements (cinematographic apparatus and practices) in place.

In his work from 1999, Zielinski enumerates four *dispositives*: a “heterogeneous ensemble of picture machines,” cinema, television and the complex kit of “advanced audiovision” (1999: 19). This classification certainly reveals the focus of his research interests back then, and it should not be taken as exhaustive. There is no reason to limit the idea of *dispositif* to these pre-established, conventional stages of mass media. Analytically, the term could be employed to address any arrangement that allows a given mediatic experience, regardless of its rhythm or scale, and from which such experience cannot be abstracted. In other words, a *dispositif* could refer to the pure situatedness and relationality that a particular experience is the effect of.

In an attempt to understand how cinema and technology organize one another, the primary *dispositif* to consider is the entire cinematographic circuit, whose surface effect is the medium itself, and whose duration is the medium’s history. This seemingly totalizing arrangement could be taken as a complex vector upon which other *dispositives* partially superimpose and reinforce, and partially cut across. For instance, the arrangement involved in the screening of a commercial feature in a multiplex theatre would mostly coincide with synergies already established within the cinematographic circuit (making it an obviously cinematographic situation). On the other hand, a video festival or the exhibition of a film like *Grindhouse* (Quentin Tarantino & Robert Rodriguez, 2007) would dispose conventional elements in a slightly uneven way, while still respecting the medium’s technical margin of indetermination (therefore, stressing their own particularity as special events). On a further side of this spectrum, one could find a piece such as Rafael Lozano-Hemmer’s *Body Movies* (2008), an interactive installation that employs procedures that are invisible within cinema as a direct way to engage the audience in its poetic interplay (so that, as integral as it can be to the cinematographic circuit, the installation remains outside of the medium).

Besides allowing the apparatus to be classified according to their degree of belonging to cinema, a *dispositif* also does the opposite: it exposes which synergies in the circuit are actually relevant to a given surface, demonstrating that what is most

essential to a movie's meaning and value sometimes extrapolates the range of conventional cinematographic operations. This perspective would give the necessary importance to the cult following of *The Rocky Horror Picture Show* (Jim Sharman, 1975), which – with its props, rituals and websites – cannot be contained by normal means of circulation.

Above all, this approach creates the condition for a transversal understanding of cinema, attentive to the medium's genesis and the primacy of multimedia. As a *dispositif*, the cinematographic circuit seems to be in constant interaction with others, which simultaneously include and are included within it. Disregarding how these other *dispositives* are understood through the medium's own conventions (as tentative, pre- or post-, expanded or live cinemas), one gets to see the dynamics of specification not simply as processes that maintain cinematographic apparatus, but also as the continuing promotion of the medium as a parameter for other media.

In other words, the *dispositif* is precisely where media differ from one another. The belief in the a priori specificity of cinema frames a practice such as p2p film piracy as its unauthorized emulation; a clumsy copy of real movie distribution. When, on the contrary, such specificity is considered collateral to cinema's technical becoming, piracy appears to be a side effect of the normalization of emerging technologies within the medium. However, once p2p filesharing is accepted as being as much a *dispositif* as any of cinema's conventional operations, the normality of one over the other is denied altogether. According to this final perspective, one is the writing – or arrangement – of the other in the history of its own practice. As much as the p2p film piracy takes part in the genesis of cinema, so does the medium take part in the genesis of Internet filesharing.

Pointing towards the *ungovernable* that originally concerned Michael Foucault (Agamben, 2009: 24), a *dispositif* accounts for everything that cannot be fully represented, abstracted or normalized. By adopting this notion to frame one's engagement and experience of cinema, an incommensurable horizon of possibilities for the medium appears. In the light of all of these possibilities, every effort to escape and even overturn the limits of a media-specific understanding becomes especially pertinent. To get a hold of the complexities of the cinematographic circuit, it might be relevant to frame cinema as a mere stage in the history of other devices or to analyse

the medium according to foreign parameters. Cinema could be approached as a post-magic lantern or a pre-video; as too slow for the Internet or too flat for real life. Such a method would benefit a research aimed at investigating the vicissitudes of the medium without becoming subjected to them.

References

Agamben, Giorgio (2009) "What is an Apparatus," pp. 01-24 in **Agamben**, G.; **Kishikm D.**; **Pedatella**, S. (eds.) "What is an apparatus?: and other essays", USA: Stanford University.

Hakim, B., (1991) *T.A.Z. - The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism*, Brooklyn: Autonomedia [online]. Available: <http://goo.gl/MzOtZ> [14 Aug 2011].

Buck-Morss, S., (1991) *The Dialectics of Seeing: Walter Benjamin and the Arcades Project*, Cambridge: MIT.

Comolli, J., (1985) "Machines of the Visible", pp. 741-760 in **Mast**, G.; **Cohen**, M. (eds), *Film Theory and Criticism: Introductory Readings*, 3rd ed, New York, USA: Oxford University.

Cubitt, S., (2004) *The Cinema Effect*, Cambridge: MIT.

Flusser, V., (2000) *Towards a Philosophy of Photography*, USA: Reaktion Books.

Goddard, M., (2011) *Towards an Archaeology of Media Ecologies: "Media Ecology", Political Subjectivation and Free Radios*, *Fibreculture*, 17, Apr 2011 [online]. Available: <http://goo.gl/gqEzz> [14 Aug 2011].

Greenberg, J., (2008), *From Betamax to Blockbuster: Video Stores and the Invention of Movies on Video*, Cambridge: MIT.

Krauss, R., (1999) "A Voyage on the North Sea": *Art in the Age of the Post-Medium Condition*, London: Thames & Hudson.

Kuhn, T., (1996) *The Structure of Scientific Revolutions*, 3rd ed, USA: University of Chicago.

Machado, A., (1988) "A Arte do Vídeo", São Paulo: Brasiliense.

Machado, A. (2002) "Pré-Cinemas e Pós-Cinemas", 2nd ed, São Paulo: Papyrus.

Menotti, G., (2007) *Através da Sala Escura: Aproximações entre a Sala de Cinema e o Espaço do Vjing*, Unpublished MA, São Paulo: PUC-SP.

Rodowick, D. N., (2007) *The Virtual Life of Film*, London: Harvard University.

Simondon, G., (1958) *On the Modes of Existence of Technical Objects*, Paris: Aubier, Editions Montaigne, transl. Ninian Mellamphy, Canada: University of Western Ontario, 2008 [online]. Available: <http://goo.gl/7zEmg> [14 Aug 2011].

Sontag, S., (1979) *On Photography*, London: Penguin Books.

Warner, M., (2002) *Publics and Counterpublics*, USA: Zone Books.

Zielinski, S., (1999) *Audiovisions: Cinema and Television as Entr'actes in History*, Amsterdam: Amsterdam University Press.