

**Salvador Dalí and Marcel Duchamp: “Reversing the laws of cinematography”...*frame-by-frame*.**

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This essay considers some of the imaginative ways Salvador Dalí (1904-1989) and Marcel Duchamp (1887-1968) explored and presented frame-based conceptualizations of cinematography. That is to say, cinematography understood fundamentally as an ensemble of discrete frames that underpin any subsequent “animation.” I argue that the two artists do so in radically regressive ways that directly lead back to the Cinématographe’s earliest incarnations and the proto-cinematographic “broth”<sup>1</sup> of the nineteenth century and beyond, as well as, in the same gesture, inviting a primal understanding of the technology. I refer to this gesture as atavistic – to borrow a favourite term of Dalí’s; atavism meaning a reversion to archaic, ancestral states. Hence the quotation “reversing the laws of cinematography” in the title, taken from a late 1970’s report on an unrealized project of Dalí’s.<sup>2</sup> This cinematographic atavism takes us back to a notional “originary” point where cinematography opens up and reveals its individual frames rather like the “*épanouissement cinématique*” - translated as Cinematic Blossoming or Expansion - that Duchamp placed at the center of his famous *La mariée mise à nu par ses célibataires, même* (*The Bride Stripped Bare by Her Bachelors, Even*) or *Large Glass* (1915-1923). To reverse the laws of cinematography in the way outlined here is to adopt a “media archaeological,”<sup>3</sup> retrospective view that challenges the perceived founding principle of cinematography - to depict seamless movement - by attending to the frames which underpin any such effect.

Identifying and recouping Dalí’s and Duchamp’s frame-based conceptualizations of cinematography enriches our understanding of their work and relationships with cinema.

Perhaps more importantly, however, we come to recognize in their work enduringly welcome proposals for a subversive understanding of what cinematography is, has done and can do; particularly useful in approaching certain forms of frame-based avant-garde and experimental filmmaking.<sup>4</sup>

Dominant forms and accounts of “cinema” privilege seamless movement and ascribe cinematography’s frames a marginal, subservient, even invisible, role. Looking back to the introduction of proto-cinematographic, stroboscopic devices over the course of the nineteenth century, we immediately notice that both the devices and explicatory accounts were very different to their equivalents today. The multiple, discrete images (or proto-frames) were in open view and the duality between these and the composite, localized “animations” were widely discussed. As Jonathan Crary states,

By exposing [their] inner workings, [proto-cinematographic] device[s] divided the observer’s attention, so that one could become as entranced by the overall flickering and movement of the machine as by the appearance of a single figurative image.<sup>5</sup>

To sharpen this schema of proto-cinematographic spectatorship, we must underline that these devices did not “expose” their “inner workings”: *they were as they were*. Only later did inventors begin to hide elements that only then became “inner workings.” Attention to cinematography’s frames did not disappear with the increasingly widespread appearance of celluloid filmstrip-based viewing devices over the course of the 1890’s; but took rather longer to wane. Consider the PAF (pseudonym of Jules Renard, 1833-1926, a.k.a Draner) cartoon from *La Charivari*, 17th May 1896 (mere months after the Lumières’ first public show on the 28th December 1895), seen in **Figure 1**.



Figure 1. PAF cartoon, *La Charivari*, 17th May 1896.

“Ah-ha!... You’re the husband?” asks the concierge. “No, no... I’m taking eight hundred frames [*clichés*] for my Cinématographe!” replies the cheerfully brazen, voyeuristic cameraman. Beyond pointing to how cinematography was initially understood and measured in terms of frames, rather than length (“footage”) or time, the cartoon also plays with erotic concerns not dissimilar to those found in the work of Dalí and Duchamp. It is against the

formative backdrop of this early, frame-conscious phase of cinematography that I insist we place our two artists here.

In part, this essay extends the scope of Rosalind Krauss's identification of a devolutionary "pulse" that courses through the modernist avant-garde, principally manifesting in the work of Duchamp, Pablo Picasso and Max Ernst.<sup>6</sup> Premised on the proto-cinematographic zoetrope as much as the Cinématographe itself, and informed by Crary, Krauss's "pulse" pivots on the "on/off binarism"<sup>7</sup> of stroboscopic intermittence and the duality between discrete frames and composite animation; its "beat both constructing the gestalt [of a work] and undoing it at the same time."<sup>8</sup>

I discuss each artist in turn, offering Dalí's *Buste de femme rétrospectif* (*Retrospective Bust of a Woman*) (original version, 1933) and Duchamp's *Large Glass* as case studies.

### Marcel Duchamp

It is often overlooked that Duchamp's film *Anémic Cinéma* (1926), made with the assistance of Man Ray and Marc Allégret, is an animation, shot frame-by-frame due to the limitations of the available camera equipment. As Duchamp later conceived of it, he and his collaborators were "obliged to abandon mechanical means, and make everything [them]selves. A return to the hand, so to speak."<sup>9</sup> While the "abandonment of mechanical means" is a rather inaccurate way of describing the situation - given that the camera worked and the film was successfully exposed - Duchamp is admirably trying to articulate something distinctive about frame-based cinematography, namely: that through this process, human agents become acutely aware of cinematography's frame-structure via a peculiar relationship with the technology, interjecting in and around each frame. This chimes with two renowned

animator's definitions of the process. For Norman McLaren, animation is “the art of manipulating the *differences* between successive frames,”<sup>10</sup> while Alexander Alexeieff describes animators as “microscopists of the cinema [for whom] the substitution of images contains the very fabric of their art.”<sup>11</sup> Duchamp, who understood the mechanics of cinematography practically and theoretically, clearly saw in frame-based cinematography something that differed from live-action, where recording the fluidity of natural movements relies, inversely, on fixed “mechanical means.” Duchamp's emphasis on the role of the “hand” in stop-frame cinematography is especially important here. It anticipates Donald Crafton's account of “the hand of the artist” in the iconography and presentational rhetoric of early trick and animated films.<sup>12</sup> More than this, Duchamp claims this enduring practice for the avant-garde, just as Crafton claims it for the animator. We can thus appropriately expand Craig Adcock's photography-focussed ascription of Duchamp's “stop/frame way of thinking”<sup>13</sup> to include frame-based cinematography.

Duchamp's engagement with so-called pre- or proto-cinematography is well-documented, if less often explicitly stated as such. *Nu descendant un escalier* (*Nude Descending a Staircase*) Nos. I and II (1911 and 1912, respectively) stand as ready touchstones for his playful interest in chronophotography; Duchamp himself mentioning the work of Étienne-Jules Marey, Eadweard Muybridge and Thomas Eakins.<sup>14</sup> Erkki Huhtamo,<sup>15</sup> Laurent Mannoni<sup>16</sup> and Andrew W. Uroskie<sup>17</sup> have each emphasized the influence of wider proto-cinematographic sources and practices on a greater range of Duchamp's works, including *Handmade Stereopticon Slide* (1918), the *Revolving Glass Machine* (renamed *Rotary Glass Plates* (*Precision Optics*)) (1920), *Rotary Demisphere* (*Precision Optics*) (1925), the *Rotoreliefs* (published in 1935) and the *Large Glass*. The suite of “rotary” works clearly owes a debt to the diverse optical disks developed by nineteenth century scientists such as Michael Faraday,

Joseph Plateau, Simon Stampfer and Jan Evangelista Purkyně<sup>18</sup>; although it must be noted that these works of Duchamp do not employ stroboscopy, as do many of their forebears.

Duchamp's *Large Glass* harbours a simple, yet intricate frame-based cinematographic model within its deliberately convoluted and multifaceted amalgam of components and cultural references. Among the copious *Notes* that are inseparable from the *Large Glass* itself, we find the following early idea, dated 1913:

*make a painting or sculpture as one winds up a reel of cine-film.*

*– with each turn, on a large reel, (several metres in diameter if necessary,) a new “take” continuing the preceding turn and linking it to the next*

*– This continuity may have nothing in common with cinematographic film ~~or have~~ ~~give the aspect of movement~~ nor resemble it.<sup>19</sup>*

This note is key to my argument; Duchamp attempting to articulate a fundamental rethinking of cinematography that trades precisely on the potentialities of visible frame-by-frame articulations over and above any commitment to movement. Although the execution of the *Large Glass* can hardly be said to equate to the process set out in this note, I believe we find ample evidence that its core premise remains very much in play.

Jean-François Lyotard has gestured toward a similar conclusion, seeing in the *Large Glass* “not only the film, but also the recording apparatus with all its implied settings.”<sup>20</sup> While Lyotard productively returns us to the issue of the dual presentation of the animated image and its underlying mechanisms, his wider interpretation is hampered by an inability to let go

of the sovereignty of the principle of cinematographic movement.<sup>21</sup> Echoing Lyotard, Tom Gunning has suggested that Duchamp “conceived [of *The Large Glass*] as a cinematic animation,”<sup>22</sup> its two glass panels equating to two film frames.

Further complexity is added to this interpretation of the *Large Glass* when we recognize that elements of its schema/composition also convey a frame-based model of cinematography. i.e. we are now dealing with frames within frames. The Bride’s “*épanouissement cinématique*” constitutes the major point of entry here. For Duchamp, “This cinematic blossoming which expresses the moment of the [Bride’s] stripping [...] is the most important part of the painting. (graphically as a surface) [...] The painting will be an inventory of the elements of this blossoming.”<sup>23</sup> Thus, if we can persuasively make the case for a cinematographic interpretation of the Cinematic Blossoming, it readily reverberates throughout the whole schema. The potential obstacle here is that in French *cinématique* refers primarily to a branch of theoretical mechanics – kinematics in English – closely linked to geometry.<sup>24</sup> Moreover, Duchamp endows the “*épanouissement cinématique*” with so many other diverse connections that scholars are divided on the scope of the artist’s meaning. For David Joselit,<sup>25</sup> Pavle Levi,<sup>26</sup> and, by inference, Lyotard and Gunning, the reference to cinema is clear. Conversely, Adcock<sup>27</sup> and Linda Dalrymple Henderson<sup>28</sup> have largely avoided any kind of cinematographic interpretation, preferring to emphasize not only kinematics and automobiles, but also spark telegraphy, Apollinaire’s cinematic theory of Cubism and the fourth-dimension - all of which are well-founded points of reference. In my view, the *Large Glass* and its accompanying notes show that the multiple meanings of *cinématique* were not lost on Duchamp, and that amid the plethora of associations, cinematography carries as much legitimacy as any other.

For Duchamp, the Bride's "*épanouissement cinématique*" exists at two levels. As he indicates in the quotation above, it encompasses the whole work. At the same time, it is localized in the upper Bride's Domain in the region also known as the Top Inscription or Milky Way, containing the Triple Cipher of the Three Draft Pistons. Duchamp returns to the radical counter-continuity of his proposed cinematographic painting when he states that these empty squares would present a "moving inscription" comprising "group[s] of alphabetic units [that] should no longer have a strict order from left to right [...] [and] will be present only once."<sup>29</sup> Putting it differently, Duchamp envisioned this "inscription" displaying a "*form* permitting all combinations of letters sent across this said triple form[.] commands, orders, authorisations, etc."<sup>30</sup> Undermining the linguistic identity of this Milky Way, he adds, "Representation of this inscription: Photographic method."<sup>31</sup> Although mobile and grouped, these photographic-alphabetic units remain discrete. "Permitting all combinations" places recognizable, continuous forms in the minority along an extensive sequence of permutations. It is significant to our cinematographic, frame-based understanding of the Triple Cipher that Duchamp used "the number three like a refrain in duration"<sup>32</sup> that stood for an essentially infinite series.<sup>33</sup> In another note he writes,

In each fraction of duration (?) all future and antecedent fractions are reproduced – All these past and future fractions thus coexist in a present which is really no longer what one usually calls the instant present, but a sort of present of multiple extensions.<sup>34</sup>

Here, Duchamp reconciles continuity and heterogeneity. In terms of cinematography, it equates, in part, to the simultaneous awareness of multiple, discrete frames and composite,

continuous animation. The added twist is that no normal movement would be visible - just as Duchamp outlined in his 1913 note for a cinematographic painting.

Returning to the cinematographic elements and structures found in the *Large Glass* as a whole, I would like to propose a revision to the widely-held view that the work's two Domains - the upper belonging to the Bride, the lower, to the Bachelors - are somehow incompatible, and thus cannot be thought of in series or in synthetic combination - as is fundamental to a frame-based conception of cinematography. To posit this divergence, Henderson, appears to make a rare appeal to a cinematographic interpretation of the *Large Glass*, writing:

Duchamp's conception of the Bride's "blossoming" as "cinematic" [...] emphasizes the oppositional quality between the upper and lower halves of the *Glass*: the fluid, continuous, organic motion of the "cinematic blossoming" represent[ing] the closest approximation to the Bergsonian ideal of duration.<sup>35</sup>

Certainly, the two Domains are opposed, but not in such an extreme and decisive way or, indeed, in the manner suggested by Henderson. The Triple Cipher of the Top Inscription presents, as discussed, no "fluid, continuous, organic motion"; its elements, while mobile and unified, remain discrete and disjunctive. Turning to the Bachelors' Domain, we actually find Duchamp seemingly open to the presence of kinematic, and potentially cinematographic, fluidity in his description of the mechanical function of the Chariot that houses the nine Malic Moulds: "interior multiplication of the mvt. of the mill wheel to obtain speed. Projection of the chariot."<sup>36</sup> The cinematographic identity of this component is emphasized in Frederick Kiesler's photomontage of Duchamp in his studio,<sup>37</sup> where film-reels are superimposed over the Mill Wheel. Above all, there exist numerous points for overlap, intersection and

correspondence between the two panels of the *Large Glass* (see **Figure 2**). Firstly, we must remember that the Bride's Blossoming envelopes the totality of the work and that, as Duchamp himself insists, "there is no discontinuity between the bach. machine and the Bride."<sup>38</sup> He clarifies his meaning somewhat, when he speaks of the "equality of superposition: the principle dimensions of the general foundation of the bride and of the bachelor mach. are equal."<sup>39</sup> This mention of "superposition" is highly significant and invites us to lay the two panels of the *Large Glass*, on top of each other. Doing so is further encouraged by Duchamp's interest in "sliding glass panes"<sup>40</sup> and Jeremy Millar's suggestion that the "*Large Glass* be reconsidered as a sash window"<sup>41</sup>; a compelling proposition, given such notes as "1915 NY Framing the 2 glasses [in] making a window."<sup>42</sup>



Figure 2. Marcel Duchamp's *La mariée mise à nu par ses célibataires, même* (*The Bride Stripped Bare by Her Bachelors, Even*) or *Large Glass* (1915-1923).

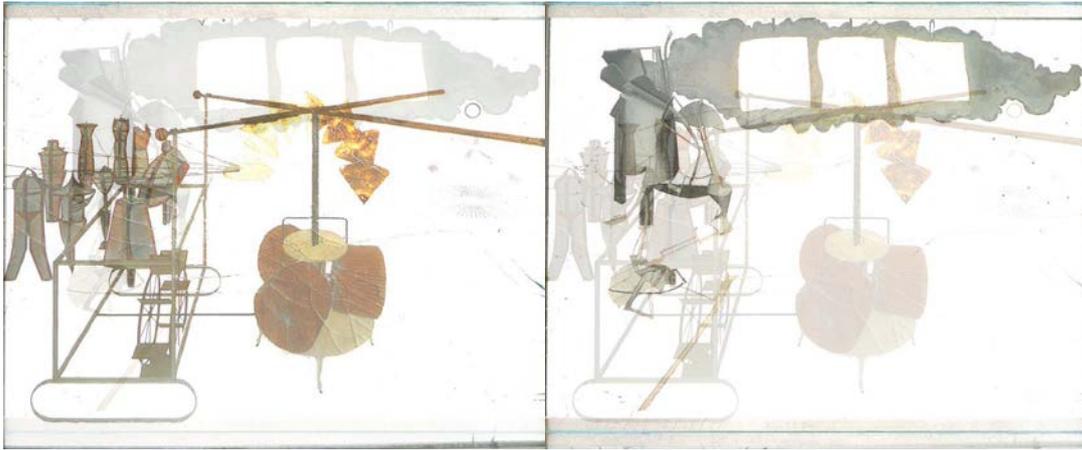


Figure 3. The two Domains of Marcel Duchamp's *La mariée mise à nu par ses célibataires, même* (*The Bride Stripped Bare by Her Bachelors, Even*) or *Large Glass* (1915-1923) superimposed. Left: Bachelors uppermost; Right: Bride uppermost.

Once overlaid (as in **Figure 3**), we see a number of precise formal correlations between the two panels. The most obvious is the correspondence between the notional Kodak Lens that crowns the Oculist Witnesses on the right-hand side of the Bachelors' Domain and a small cavity in the Milky Way of the Bride's Domain. The lower panel's Parasols or Sieves and the Scissors that rest on top of the Chocolate Grinder's pole fit neatly with the Bride's Triple Cipher. Finally, the Bride herself now sits comfortably inside the Chariot, amongst the Malic Moulds.

Taking the two panels of the *Large Glass* as consecutive cinematographic frames, superimposing them suggests how they might appear on-screen, presented in quick succession. From a proto-cinematographic perspective, this arrangement correlates with the Thaumatrope (first marketed in the 1820's); where a composite image is created by the rapid oscillation between two images on either side of a spinning disk. There are obvious similarities here, too, with stereoscopy where a third, relief image is created out of two. It is worth noting that in the 1850's Antoine Claudet marketed a modified stereoscope that utilized a similar mechanism that switched rapidly between two sequential images, offering one of the earliest

attempts at “animated photography.”<sup>43</sup> How the two Domains of the *Large Glass* relate to one another in these respects is best articulated in Duchamp’s 1913 note when he states his interest in a completely unrecognizable and alien cinematographic continuity. Consequently, we are simultaneously dealing with the vertical distancing of the upper and lower panels, their status as a gloriously disjunctive two-“frame” cinematographic sequence (mirrored in the Triple Cipher of the Top Inscription), as well as their superimposition which suggests a complex, composite arrangement for the Bride and her Bachelors.

One of the *Large Glass*’s conceptual layers is a primal cinematographic scenario that endlessly reconfigures the hermeneutic part-to-whole problem of its frame-by-frame articulation. As such, it offers a model of cinematography that has diverged at root from the premise of depicting continuous movement to explore the infinite communicative potential and combinatorial pulse of its frames. To achieve this, Duchamp imagines a counter-continuity held in an essentially proto-cinematographic arrangement in which the frames remain visible at all times.

### Salvador Dalí

According to one of his “authentic false memories,”<sup>44</sup> Dalí was profoundly affected at an early age by a proto-cinematographic optical device of “irresistible glamor”<sup>45</sup> in his schoolteacher’s possession. Casting his mind back to the 1910’s, Dalí recalled,

The central object of all my ecstasies [...] was a kind of optical theater, which provided me with the greatest measure of illusion of my childhood. I have never been able to determine or reconstruct in my mind exactly what it was like.<sup>46</sup>

Despite this mutability in memory, Dalí nevertheless provides some details of the optical theater's design. He describes it as a

large square box [...] [in which] one saw everything as if at the bottom of and through a very limpid and stereoscopic water, which became successively and continually colored with the most varied iridescences. The pictures themselves were edged and dotted with colored holes lighted from behind and were transformed one into another in an incomprehensible way that could be compared only to the metamorphoses of the so-called "hypnogogic" images which appear to us in the state of "half-slumber."<sup>47</sup>

In this device, Dalí continues,

I saw the images which were to stir me most deeply, for the rest of my life; the image of a little Russian girl especially [...] [who] appeared to me swathed in white furs and deeply ensconced in a sled, pursued by wolves with phosphorescent eyes."<sup>48</sup>

Dalí's doubtlessly embellished memory testifies to the impact of proto-cinematographic culture on his very perception and way of thinking. He potentially conflates a number of optical devices, suggesting some form of animation fused with what appears to be a description of a *boîte à vues d'optique*. Under this name a group of different devices enjoyed their heyday in the 1700's; one kind, as Dalí describes, making use of perforated outlines and shifts between front- and rear-lighting of double-sided "single" images that generally illustrated differing day and night or seasonal activities in a given locale.<sup>49</sup> If this was not a specifically stroboscopic, frame-based device, it certainly belonged to the wider and heterogeneous category of what is now termed pre- or proto-cinema. It clearly sensitized Dalí to the myriad ways in which images could be manipulated, multiplied and animated. I

venture that the amorphousness that enshrouded this device for Dalí relates precisely to the proto-cinematographic dual-presentation of mechanism and image; a combination that remains hard to articulate to this day, as both assert themselves as prime attraction. In the above remarks, Dalí simultaneously signposts both the wider surrealist project and his own Paranoia-Critical Method in which one is supposed to seamlessly move through a series of radically different or disjunctive images.<sup>50</sup> In my view, Dalí's signature method similarly calls on viewers to oscillate between mechanism and image, just as we must do in relation to proto-cinematographic devices. Celebrating Paranoia-Criticism in 1930, Dalí states, "It is enough that the delirium of interpretation should have successfully linked together the meanings of the images in the heterogeneous paintings covering a wall for the real existence of this link to be no longer deniable."<sup>51</sup> Here, Dalí makes clear that the network of relations unified in cognition - the mechanism - is as equally important as the discrete images anchoring meaning. A second piece of graphic satire from the late 1890's assists in applying Dalí's premise directly to a frame-based conceptualization of cinematography.

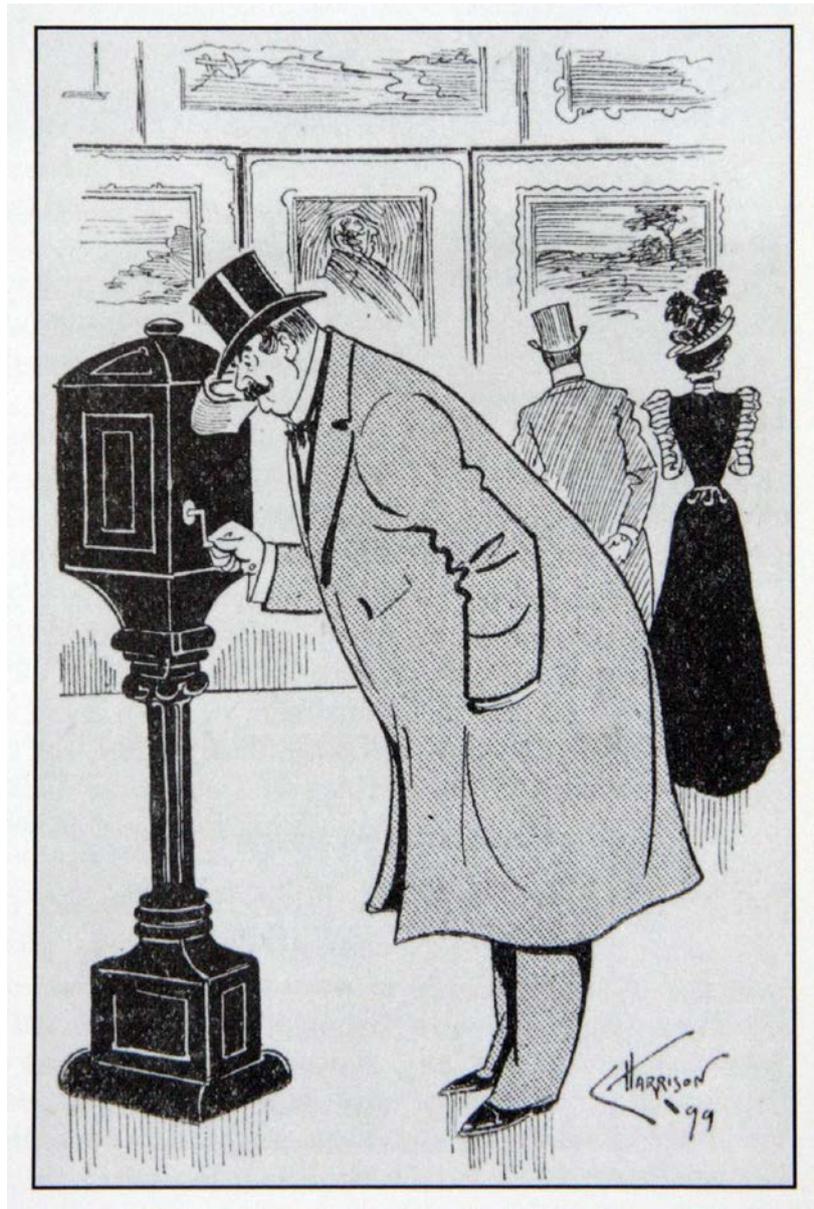


Figure 4. Charles Harrison, "Suggestion for the RA: A Mutoscope of the Pictures, for the use of visitors in a hurry. The Royal Academy "done" in five minutes," *Punch*, 10 May 1899.

The cartoon in **Figure 4** functions well as an ironic comment on, among other things, a perceived isomorphic relationship between the overwhelming numbers of pictures on display in the gallery and cinematographic frames used in a film. However, it also indicates two points of great significance to our discussion. Firstly, the frames would not just be palpable - viewers controlling their speed with a crank - but extremely visually heterogeneous. This is cinematography as solid information, not movement. Secondly, the gallery pictures, when

reproduced as cinematographic frames, cease to be spread out, and instead become localized at a single viewing point. This is precisely what Dalí aspires to achieve in his Paranoia-Critical images. (It is worth noting that a film of the kind jokingly suggested by Harrison was not publicly exhibited until 1955, when Robert Breer presented “an endless loop of film composed entirely of disparate images,”<sup>52</sup> entitled *Image by Images I*, at the Gallerie Denise René in Paris as part of the important *Le Mouvement* show in which Duchamp also took part.)

A pair of photographic portraits of Dalí and his sister, Anna Maria, taken in 1914 further enrich this formative scenario. The portraits, kept in the collection of the Toy Museum of Catalonia, Figueres, are so-called animated lenticular (or screen) photographs, marketed internationally to domestic consumers over the 1910’s and 1920’s. When such pictures are turned slightly from left to right, their subjects appear to move, due to the disguised interlacing of two or more separate photographs. As Kim Timby notes, these portraits were advertised as “animated photographs,” and even “cinema in a single photo.”<sup>53</sup> Timby observes,

In apparatuses such as the flip-book or zootrope, the multiple images required for the illusion are in plain sight: their existence and their differences may be observed while the set of images is at rest. [...] [Lenticular] line-screen photography caused an epistemological break in the domain of moving images by interlacing [the] individual views needed for the production of the illusion, thus making it impossible to see them separately, one beside the other. [...] A “cinematographic” effect was presented in the guise of a standard photograph. [...] [However,] its jerky animation that always looped back on itself instead of moving forward towards something new represented anything but speed.<sup>54</sup>

This assessment of lenticular photographs offers suggestive food for thought when considering the portraits of the young Dalí siblings; the hybrid medium certainly resonating with the compressed way in which Dalí layers images in a single composition through his Paranoia-Critical Method. What Timby downplays is that viewers nevertheless remain highly aware of the lenticular photograph's "frames," even if they are unable to see them in the way they do in a zoetrope or when reproduced in print.

When we turn to Dalí's writings, especially those of the late 1920's and early 1930's - and not only those dedicated to film - we frequently find what appear to be vestiges of these formative (proto-)cinematographic experiences. For example, in 1927, writing about the "birds" of photography and film, Dalí casts the sound of the film projector as central to rendering the frames visible. Here, the invitation - or challenge - to viewers is to literally see cinematography *as* pulsed chronophotography:

If we listen, we will hear the black and white music of these birds' different velocities as they exit through the milky way of the projector. Then it will be sweet to see how the most dizzying flights are a succession of calms and the most inspired beatings of wings, a series of anaesthetized lulls; each new light, a new anaesthesia.<sup>55</sup>

As if continuing this thought in his 1933 "letter to André Breton," which contains a long list of numerous avenues of conceptual photographic research undertaken, Dalí speaks of the "instantaneous moment of luminous transition."<sup>56</sup> Here, the structure of cinematographic intermittence appears to have been inverted; the interstices rendered light, rather than dark.

Dalí's assemblage *Retrospective Bust of a Woman*<sup>57</sup> offers a rich proto-cinematographic, and thus frame-based, topology through its use of a vintage zoetrope strip as the bust's "choker." Immediately attracting lasting attention at Galerie Pierre Colle's Exposition surréaliste in Paris, 1933, it is one of Dalí's earliest explorations of his own and society's obsession with Jean-François Millet's *L'Angélus* (1857-9). The reference to Millet takes the form of an elaborate golden pen-holder which crowns the reappropriated milliner's bust. If we take this crowning item as defining *The Angelus's* direct field of influence, the rest of the work occupies a subterranean position in relation to it (as seen in **Figure 5**).



Figure 5. Man Ray, Detail, View of the Exposition surréaliste at the Galerie Pierre Colle, 1933.

Dalí repeats this strategy in his painting of the same year, *Gala et l'Angélu de Millet précédant immédiatement la venue des "anamorphoses coniques"* (*Gala and the Angelus of Millet Preceding the Imminent Arrival of the Conical Anamorphoses*) (1933), in which a modified re-rendering of the Millet is placed high-up in the composition, hanging over a door, below which, as it were, the “Dalínian” intervention takes place. This notion of a subterranean field of activity, beyond, yet extending, Millet’s composition correlates with Dalí’s probably accurate claim that Millet originally included a child’s coffin positioned between the man and the woman in the picture, but ultimately opted to paint it out.<sup>58</sup> For Dalí, this erasure sits at the root - and, thus, helps to explain - the painting’s power; and it comes as no surprise that he would seek to imaginatively explore this hidden realm of possibility.

*Retrospective Bust of a Woman* recapitulates the subterranean theme in further ways. Carrying the alternative title of *L'Abondance*, the piece unequivocally presents the bust as a Mother Nature figure, signalled by the heads of corn that accompany the zoetrope strip around its neck, and by the bread that acts as a membrane between culture and nature, overground and underground, conscious and subconscious, Millet and Dalí. A fitting archetype here is the Roman goddess, Ceres, known previously to the Greeks as Demeter, long associated with the Earth - the terrestrial ground - and the cyclical seasons. Zoetropes, of course, also utilize a cyclical mechanism, offering viewers animated loops that last as long as they are willing to spin the device. Following his renewed interest in the *Retrospective Bust of a Woman* and zoetropes in general in the 1970’s, Dalí once again makes an explicit connection between proto-cinematography and the seasons in his cover for *Harper’s Bazaar Italia* (31/12/1981), entitled *Le prêt-à-porter du prochain printemps: des guirlandes, des nids et des fleurs* (*Ready-to-wear Fashion for Next Spring: Garlands, Nests and Flowers*) (1981). Here, we find a portion of another vintage zoetrope strip depicting the elegantly circular

activity of circus tumblers. Historically, the cyclicity of the seasons has been given two aspects: one of fertility, one of death. Holding both aspects in play, *Retrospective Bust of a Woman* stages a point of fitting ambiguity as to whether the bust is rising up or receding downwards. If the fate of Millet's elusive dead and buried child seems fixed, the zoetrope strip carries an animated, rejuvenating morbidity. Well-known and widely-reproduced in the second half of the nineteenth century under various titles including *French Revolution*, *Headwork*, and *Changing Heads*, the strip features the successive stages of a figure's self-decapitation and recapitation (or that of a group, when animated). Dalí underlines this duality by utilizing the strip as a choker to mark the critical point on the Bust's neck; its series of figures suggestive of a perforated line. The Zoetrope, or rather the zoetropic model, is therefore the very technology by which this de/recapitation would take place; preceded, preempted and ushered-in by the loop's figures.

It has been suggested that the zoetrope strip used in *Retrospective Bust of a Woman* depicts Charlie Chaplin,<sup>59</sup> and so generates a rapport that reflects Dalí's and other modernist artists' passion for "Charlot," and with it, silent, slapstick comedy - that, by 1933, was facing consignment to history in the face of synchronized sound film. As noted above, the zoetrope strip is much older. Published early on by toy producers Milton Bradley, the London Stereoscopic & Photographic Company (see **Figure 6**), and H. G. Clarke, as well as French newspaper, *Le Figaro*, the strip dates back to at least 1868, as evidenced by its appearance on the front page of *Le Figaro* for the 27th April of that year.<sup>60</sup> Its widespread longevity is indicated by its inclusion as a supplement to American newspaper, *The Sunday Herald*, nearly thirty years later, on the 19<sup>th</sup> April 1896, while Henry V. Hopwood subsequently described it as a "very good example" of zoetropic animation in his 1899 book *Living Pictures: Their History, Photo-Production and Practical Working*.<sup>61</sup> Consequently, the figure seen on the zoetrope strip used by Dalí cannot be Chaplin.



Figure 6. *Headwork* zoetrope strip, from Series No.2, London Stereoscopic & Photographic Company, ca.1868.

With its milliner's bust, Millet inkwell and zoetrope strip, *Retrospective Bust of a Woman* points resolutely, I would say, atavistically, to the nineteenth century and beyond: if most Surrealist Objects hold a mirror up to modern, industrial society and its culture of mass-production, this piece might stand as one of its creation myths.

Separating the zoetrope strip from its habitual viewing device, Dalí suspends the principle of proto-cinematographic animation, and literally turns it inside-out; figures on such strips necessarily facing inwards when lining the drum of a zoetrope. *Retrospective Bust of a Woman* transports us to an imaginary threshold of cinematography that shows off its constituent frames, indicative of its stroboscopic specificity. Dalí's assemblage thus emerges as equally emblematic of the "zoetropic pulse" Krauss sees in Ernst's collage from *Rêve d'une petite fille qui voulut entrer au Carmel* (*A Little Girl Dreams of Taking the Veil*) (Paris: Éditions du Carrefour) (1930) which appropriates an illustration of Marey's large zoetrope taken from *La Nature* 5th December 1887.<sup>62</sup> Applying Krauss's model retrospectively suggests that Dalí wants us to test the pulse of the composite elements of the work.

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Cinematography's frames and frame-structure evidently played an integral part in both Dalí's and Duchamp's understanding of the medium and its heritage. Their frame-based conceptualizations of cinematography trace atavistic paths back to primal cinematographic states that often appeal to the dualistic tension between discrete frames and composite animation found in proto-cinematographic displays. In doing so they challenge more common accounts of "cinema" that privilege movement - even their own, on occasion.

There are potential insights to be garnered here, too, about the ways both worked with images in series, especially in terms of reflexive and recursive strategies. In Duchamp's *Large Glass*, frame-based cinematographic structures appear to guide its Hermeneutic part-to-whole circuit, while in Dalí's *Retrospective Bust of a Woman* these structures aid the circulation of themes and symbols. In imaginatively foregrounding cinematography's frames and their historical legacies, Dalí and Duchamp remind us that there is never simply a "moving image."

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<sup>1</sup> I borrow this term from André Gaudreault, "The Culture Broth and the Froth of Cultures of So-called Early Cinema," in *A Companion to Early Cinema*, ed. Nicolas Dulac, André Gaudreault, and Santiago Hidalgo (Malden and Oxford: Wiley-Blackwell, 2012), 18–20.

<sup>2</sup> Anonymous, from *Le Film Français*, April 13, 1979, cited in Robert and Nicolas Descharnes, *Dalí: The Hard and the Soft: Spells for the Magic Form: Sculptures and Objects* (Azay le Rideau: Eccart, 2004), 62.

<sup>3</sup> The field of media archaeology continues to expand in scholarly, artistic and curatorial directions. See, for example: Erkki Huhtamo and Jussi Parikka, eds., *Media Archaeology: Approaches, Applications, and Implications* (Berkeley: University of California Press, 2011); Laurent Mannoni, *The Great Art of Light and Shadow: Archaeology of the Cinema* (Exeter: University of Exeter Press, 2000); the exhibition catalogue *Eyes, Lies and Illusions* (London and Aldershot: Hayward Gallery Publishing / Lund Humphries, 2004).

<sup>4</sup> Frame-based avant-garde and experimental filmmaking is the topic of my doctoral thesis, which contains the first iteration of the present essay. I am currently preparing this work as a monograph. See: Barnaby Dicker, *Cinematographic Atavism, Graphic Proteanism ~ Visibly Frame-Based Cinematography: Practice, History, Theory* (PhD Thesis, Department of Media Arts, Royal

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Holloway, University of London, 2010). See also: Barnaby Dicker, [forthcoming] “21st Century Flicker: Jodie Mack, Benedict Drew and Sebastian Buerkner” in Vicky Smith and Nicky Hamlyn, eds., *Experimental and Expanded Animation: Current Perspectives* (Basingstoke: Palgrave Macmillan, 2018); and Barnaby Dicker, “Vernacular Studies: *49/95 Tausendjahrekin* (1995) and *50/96 Snapspots (for Bruce)* (1996)” in Nicky Hamlyn, Simon Payne and Al Rees, eds., *Kurt Kren: Structural Films* (Bristol: Intellect, 2016).

<sup>5</sup> Jonathan Crary, *Suspensions of Perception: Attention, Spectacle, and Modern Culture* (Cambridge and London: The MIT Press, 2001), 261.

<sup>6</sup> See Rosalind Krauss, “The Im/Pulse to See” in Hal Foster, ed., *Vision and Visuality* (Seattle: Bay Press, 1988), 51-75; Rosalind Krauss, *The Optical Unconscious*. (Cambridge and London: MIT Press, 1994), 205-29; and Rosalind Krauss, ““Moteur!”” and “Pulse” in Yve-Alain Bois and Rosalind Krauss, *Formless: A User's Guide* (New York: Zone Books, 1997), 133-7 and 161-5.

<sup>7</sup> Krauss, *The Optical Unconscious*, 202.

<sup>8</sup> Krauss, “The Im/Pulse to See,” 59.

<sup>9</sup> Marcel Duchamp in Pierre Cabanne, *Dialogues with Marcel Duchamp* (Cambridge: Da Capo Press, 1987), 68.

<sup>10</sup> Norman McLaren in Georges Sifianos, “The Definition of Animation: A Letter from Norman McLaren with an Introduction by Georges Sifianos,” *Animation Journal* Vol. 3, No. 2 (1995): 66.

<sup>11</sup> Alexander Alexeieff, “The Synthesis of Artificial Movements in Motion Picture Projection,” *Film Culture* 48-49 (1970): 44.

<sup>12</sup> See: Donald Crafton, “Animation Iconography: The ‘Hand of the Artist,’” *Quarterly Review of Film Studies* 4, no. 4 (Fall 1979): 409-428; and Donald Crafton, *Before Mickey: The Animated Film, 1898–1928* (Chicago: University of Chicago, 1993).

<sup>13</sup> Craig Adcock, “Marcel Duchamp’s ‘Instantanés’: Photography and the Event Structure of the Ready-Mades,” in Stephen Forster, ed., *‘Event’ Arts and Art Events* (Ann Arbor and London: UMI Research Press, 1988), especially 239-240, 244-245.

<sup>14</sup> Marcel Duchamp in Anne d’Harmoncourt and Kynaston McShine, eds., *Marcel Duchamp* (Philadelphia: Philadelphia Museum of Art, 1973), 256.

<sup>15</sup> Erkki Huhtamo, “Mr. Duchamp’s Playtoy, or Reflections on Marcel Duchamp’s Relationship to Optical Science” in Tanja Sihvonen and Pasi Väliäho, eds., *Experiencing the Media: Assemblages and Cross-Overs* (Turku: University of Turku, Media Studies, 2003), 54-72.

<sup>16</sup> Laurent Mannoni, “The Art of Deception” in *Eyes, Lies and Illusions* (London and Aldershot: Hayward Gallery Publishing/Lund Humphries, 2004), 41-52.

<sup>17</sup> Andrew W. Uroskie, *Between the Black Box and the White Cube: Expanded Cinema and Postwar Art* (Chicago: University of Chicago Press, 2014), 94-104.

<sup>18</sup> For translations of publications by Plateau, Stampfer and Purkyně detailing their proto-cinematographic devices, see the special issue of *Art in Translation* I edited dedicated to “Cinematographic Art” Vol. 8, No.1 (2016).

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<sup>19</sup> Marcel Duchamp, *à l'infinif* (Northend: the typosophic society, 1999), 12. This is Richard Hamilton's "typographic translation."

<sup>20</sup> Jean-François Lyotard, *Duchamp's Trans/formers* (Venice: The Lapis Press, 1990), 180.

<sup>21</sup> See: *Ibid.*, 161-8.

<sup>22</sup> Tom Gunning, statement made at the Pervasive Animation conference, Tate Modern, 4 March 2007. Video recording available online at: <http://www.tate.org.uk/context-comment/video/pervasive-animation-day-2-video-recordings#open266145> accessed 1 November 2017 (select: Pervasive Animation – Part 11: Discussion 3).

<sup>23</sup> Marcel Duchamp, "The Green Box," in Michel Sanouillet and Elmer Peterson, eds., *The Writings of Marcel Duchamp*. (Cambridge: Da Capo Press, 1989), 42.

<sup>24</sup> In an 1888 survey, Louis-Marius Arnal stated that kinematics "deals with movement considered independently of its causes [...] from a purely geometric point of view" (Louis-Marius Arnal, *Traité de mécanique statique, cinématique, dynamique, hydraulique, résistance des matériaux, chaudières à vapeur, moteurs à vapeur et à gaz* (Paris: H. Chairgrasse et fils, 1888), 2.). In 1894, Amédée Mannheim published *Principes et développements de géométrie cinématique: ouvrage contenant de nombreuses applications à la théorie des surfaces*, a source Adcock cites as a potential influence on Duchamp. See: Craig Adcock, *Marcel Duchamp's Notes from the Large Glass: An N-Dimensional Analysis* (Ann Arbor: UMI Research Press, 1983), 381 and 398-402. Sharpening the definition offered by Arnal, Mannheim writes,

"While kinematics is concerned with the study of motion independent of forces, kinematic geometry is concerned with the study of motion independent of forces, time and any arbitrary element foreign to the moving figure [...] [:] Kinematic Geometry studies the intrinsic properties of the movements of figures." (Amédée Mannheim, *Principes et développements de géométrie cinématique: ouvrage contenant de nombreuses applications à la théorie des surfaces* (Paris: Gauthier-Villars et fils, 1894), v.)

<sup>25</sup> David Joselit, *Infinite Regress: Marcel Duchamp 1910–1941* (Cambridge and London: MIT Press, 1998), 124-127.

<sup>26</sup> Pavle Levi, *Cinema by Other Means* (Oxford and New York: Oxford University Press, 2012), 9.

<sup>27</sup> See: Craig Adcock, *Marcel Duchamp's Notes from the Large Glass: An N-Dimensional Analysis* (Ann Arbor: UMI Research Press, 1983), 147-153; Craig Adcock, "Duchamp's Eroticism: A Mathematical Analysis," in *Dada/Surrealism* 16 (1987), 156.

<sup>28</sup> Linda Dalrymple Henderson, *Duchamp in Context: Science and Technology in the Large Glass and Related Works* (Princeton and Oxford: Princeton University Press, 1998), 299-300 n.220, where Henderson references Adcock's work and discusses these possible influences.

<sup>29</sup> Duchamp, "The Green Box," 38.

<sup>30</sup> *Ibid.*, 36.

<sup>31</sup> *Ibid.*, 38.

<sup>32</sup> Marcel Duchamp, Paul Matisse, ed., *Notes* (Boston: G.K Hall, 1983), unpaginated [Note 77].

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<sup>33</sup> Duchamp: “Three is the rest. When you’ve come to the word three, you have three million. Marcel Duchamp in Cabanne, *Dialogues with Marcel Duchamp*, 47.

<sup>34</sup> Marcel Duchamp, *Notes*, unpaginated [Note 135].

<sup>35</sup> Henderson, *Duchamp in Context*, 167.

<sup>36</sup> Duchamp, “The Green Box,” 57.

<sup>37</sup> Kiesler’s photomontage was published as the center fold-out triptych in *View*, vol. 5, no. 1 (March 1945).

<sup>38</sup> Duchamp, “The Green Box,” 39.

<sup>39</sup> Duchamp, *Notes*, unpaginated [Note 77].

<sup>40</sup> Marcel Duchamp, “A l’infinif,” in Sanouillet and Peterson, eds., *The Writings of Marcel Duchamp*, 74.

<sup>41</sup> Jeremy Millar, “Looking Through the Large Glass,” *Tate Etc* Issue 7 (2006): 93.

<sup>42</sup> Duchamp, *Notes*, unpaginated [Note 171].

<sup>43</sup> Mannoni, *The Great Art of Light and Shadow*, 241-5.

<sup>44</sup> Salvador Dalí, *The Secret Life of Salvador Dalí* (London: Vision Press 1949), 39.

<sup>45</sup> *Ibid.*, 41.

<sup>46</sup> *Ibid.*

<sup>47</sup> *Ibid.*

<sup>48</sup> *Ibid.* As far as Dalí was concerned, this *was* his future wife, Gala.

<sup>49</sup> See: Mannoni, *The Great Art of Light and Shadow*, 86-94; and Richard Balzer, *Peepshows: A Visual History* (New York: Harry N. Abrams, 1998).

<sup>50</sup> See, for example: Salvador Dalí, “The Rotting Donkey” in *Oui* (Boston: Exact Change, 1998), 115-119.

<sup>51</sup> *Ibid.*, 115-116.

<sup>52</sup> Robert Breer, “Filmography,” *Film Culture* 56-57 (1973): 71.

<sup>53</sup> See: Kim Timby, “Cinema in a Single Photo: The Animated Screen Portrait of the 1910s,” in Olivier Lugon, Laurent Guido, eds., *Between Still and Moving Images* (New Barnet: John Libbey, 2012), 97-111. See also: Kim Timby, *3D and Animated Lenticular Photography: Between Utopia and Entertainment* (Berlin: De Gruyter, 2015).

<sup>54</sup> Timby, “Cinema in a Single Photo,” 106, 111.

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<sup>55</sup> Salvador Dalí, “Art Films, Anti-Artistic Spool,” *Oui* (Boston: Exact Change, 1998), 23.

<sup>56</sup> See Salvador Dalí, “Cher Breton (Letter to André Breton),” in Haim Finkelstein, ed., *The Collected Writings of Salvador Dalí* (Cambridge: Cambridge University Press, 1998), 251.

<sup>57</sup> My discussion of *Retrospective Bust of a Woman* is informed by the detailed research undertaken by the Centre for Dalinian Studies, Figueres, and by Johanna Malt’s thought-provoking interpretation, especially in terms of the work’s utilization of parody. See: Montse Aguer, Jean-Michel Bouhours and Laura Bartolomé, *Retrospective Bust of a Woman: 1933 / 1976-1977* (Figueres: Fundació Gala-Salvador Dalí, 2015); and Johanna Malt, *Obscure Objects of Desire: Surrealism, Fetishism, and Politics* (Oxford and New York: Oxford University Press, 2004), 113-43. I also extend my gratitude to the staff at the Centre for Dalinian Studies for their valuable assistance during a research visit.

<sup>58</sup> Salvador Dalí, *The Tragic Myth of Millet’s Angelus: Paranoiac-Critical Interpretation/The Myth of William Tell* (St.Petersburg: The Salvador Dalí Museum, 1986), v-viii.

<sup>59</sup> See: Matthew Gale, “Un Chien andalou,” in Matthew Gale, ed., *Dalí and Film* (London: Tate Publishing, 2007), 87; and Didier Ottinger, ed., *Dictionnaire de l’objet surréaliste* (Paris: Gallimard/Centre Georges Pompidou, 2013), 31.

<sup>60</sup> See: Stephen Herbert’s extensive online resource *The Wheel of Life*, <http://www.stephenherbert.co.uk/wheelContents.htm> (accessed 5th November 2017).

<sup>61</sup> Henry V. Hopwood, *Living Pictures: Their History, Photo-Production and Practical Working* (London: Optician and Photographic Trades Review, 1899), 23.

<sup>62</sup> Étienne-Jules Marey, “Le mécanisme du vol des oiseaux éclairé par la photochronographie” *La Nature* Vol.16, No. 757 (5 December 1887), 12.

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