THE PHOTO-ICON
Artistic Representation in the Cinematic Medium of Digital Effects

Senior Project submitted to
The Department of Philosophy
The Division of Social Studies
Bard College

by

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Annandale-on-Hudson, New York
April 2006

To Mom, Dad and Diana.

Acknowledgements

There are many people who made this project imaginable. Foremost are my parents, sister, grandparents, uncles, aunts and cousins who have given me endless loving support and patiently listened to the many hours of formative musings that have brought me to this text.

I offer heartfelt gratitude to my brilliant professors and mentors at Bard College, to whom I am forever indebted. The faith and support shown me by Garry Hagberg, John Pruitt, William Griffith, Daniel Berthold, Hap Tivey, Peggy Ahwesh, Mary Coleman, Julia Rosenbaum, Karin Roffman, Peter Hutton, Burt Brody, Jacqueline Goss and many others have afforded me an exceptionally wonderful undergraduate experience. I also express my gratitude to Heide Fasnacht and Donald Richie for their thoughtful consideration of my work, though I was not formally their student.

I owe a world of thanks to Peggy Richards, Nancy Barron, Janet Rogow and Jennifer Altman for their contributions to my early education.

For the opportunity to develop and deepen my interest and work in Aesthetics and Cinema, I wish to thank the Philosophy and Film Departments of Bard College.

I cannot close these acknowledgements without recognizing all of my friends and peers. I am proud to call you my colleagues in the new generation.

Preface

Herein lies a theory of representation pertaining to a future not yet realized - a future ironically pioneered by the barons of industry and the technicians of Hollywood. Before beginning, it is necessary to make clear that I am not here concerned with the future of Hollywood special effects or even purely with the possibilities of the cinematic medium, but more with the possibilities of semiological structures as they are driven by the invention of mediums that beget the formation of language. We might say that a language is limited to the capabilities of the medium that embodies it. Presently, the medium of the phenomena here discussed is just coming into existence and as the title of one chapter of this paper, *The Myth of Total Reality*, suggests, it is a medium that will never exist completely or conclusively. Moreover, this text deals with the representational abstraction of both artistic images and the physical world itself – a matter that necessarily denies the possibility of its grounding in any provable object. So it must be on intuitions of an as yet unknowable future that this text finds its basis. Nevertheless, I will attempt to usher in that future with imperfect names so that these terms may find cause to be more solidly determined by the coming of a technological renaissance, which presently seems inescapable.

In writing this text, it was my aim to show how the digital cinema fits into an evolution of visual language. It was necessary at times to argue for the divergence of this medium from its predecessor and at other times to show the linear progression from the traditional to the digital cinema. Overall, it is with profound respect for both of these mediums that I strive to pay them their due by making visible the capacities and

limitations of each within a larger trajectory of the representational progress of humankind. It is my hope that the reader will extend to both cinemas the same courtesy I have. There is something quite odd about calling the indexical cinema the "traditional" form of a medium that is only a little over a century old. As things now stand, the technical innovations that bring about new mediums are occurring at breakneck speeds. To this we must adapt but also be mindful to not forsake the old or the new on the basis of its status as such.

It was my natural intuition to model this examination of a presently non-existent medium of art upon its predecessor. For this reason, I devised the chapters of this text to correspond to three essays by André Bazin – *The Ontology of the Photographic Image, The Myth of Total Cinema,* and *The Evolution of the Language of Cinema* – which I believe provide the best and clearest description of the states and properties of the traditional cinema. By contrasting the cinema Bazin described with the medium I believe to be rising from both scientific and artistic origins, I hoped to discover a new art, and beyond that, a greater understanding of the course of contemporary aesthetics. These are my findings.

P.H.
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April 2006

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Ontology

o meager times, so fat in everything imaginable!
William Carlos Williams, *Spring and All.*

1. Refutations of a Continuous History

It is true that in a sense all of cinema is a *special effect*. Film suggests the continuous motion of its photographic subject by exchanging successive frames at a rate greater than the eye can cognize, blurring its perception of those discreet images into the illusion of living motion. From its earliest history, enterprising filmmakers exploited technical properties of the filmic mechanism to produce ever more complex tricks for the purpose of astonishing an increasingly savvy audience. The films of Georges Méliès used a combination of prop effects and stop-motion photography to bring Vaudeville magic and slight-of-hand to the screen. The basic drive of Méliès' films and those that followed in the Hollywood spectacle tradition was the amusement of its audience through the possibilities of suggestion. They were occupied with the same basic notions that inform today's Hollywood computer-generated effects laden spectacles – that in its seeming presentation of the real, film allows its viewer's imagination to soar above the mundane possibilities of actual experience into the realm of the fantastic or hyperreal while still maintaining the apparent truth of a photograph.

We would be at least in part mistaken to see the cinema's history, the history of practical or in-camera effects, as continuous with that of the emerging digital cinema. Since the film viewer has always been able to maintain his disbelief while suspending it, it is besides the point to take issue with the degree of perfection in one technique's production of the unreal over another's. The distinction we must draw between practical effects and those of digital origin is not necessitated by the disparity in their factors of believability. Rather, it is a distinction of ontology and semiology that requires us to see

digitally manipulated images as incongruous with 20th Century practical cinema. While there are particular practices that blur the coming distinction of the old and the new, we may be inclined to say that these advancements are part of an evolution. As such, we must concede that the evolution of any new species requires transitional mutations to be produced. This process, however, ultimately leads to a distinct species, which is unambiguously and genetically separate from those that caused it. This seems to be the case for the evolution of the digital cinema.

Any account of the traditional cinema as an art form or as a technical medium has necessarily had to consider certain properties that separate its unique ontology from those of other mediums. Many of these ontological properties, however, are not present in the digital cinema. In fact, the most frequent claim of cinema's ontology, stated best in André Bazin's *Ontology of the Photographic Image* that, "Originality in photography as distinct from originality in painting lies in the essentially objective character of photography," bears the least truth for digital cinema.[i] Bazin goes on to say:

> For the first time, between the originating object and its reproduction there intervenes only the instrumentality of a nonliving agent. For the first time an image of the world is formed automatically, without the creative intervention of man.[ii]

The digitally manipulated images of computer-generated blockbusters are in no way produced automatically. Rather, they require teams of technicians and artists to seamlessly combine the live-action footage of actors with a digitally created background or character. This labor, while negating the automatic property of which Bazin is speaking, also contradicts the notion of an "objective" representation of the originating object. Be it Stewart Little or King Kong, CG characters maintain the appearance of possible authentic origin – at least so much as their physical beings are in a sense

possible, though certainly not probable – but are in fact produced by a synthetic environment that mimics the physical properties of dynamics and optics to make their corporeal possibilities appear to be photographic actualities. These characters are not real and so Bazin's distinction between photography and painting does pertain to digital computer-generated imagery. The implications of this divergence of mediums follows into Bazin's conclusion about the traditional cinema that, "Photography affects us like a phenomenon in nature, like a flower or a snowflake whose vegetable or earthly origins are an inseparable part of their beauty."[iii]

The very fact that a photographic image is ontologically inseparable from its direct correspondence to something in actual existence is for Bazin the most powerful and essential quality of the medium. His model of cinema situates the filmmaker as a conductor of the real. The filmmaker shapes his natural material through the re-contextualization of its flattened and cropped appearance so that the viewer may appreciate it in its abstraction from the worldly place it once held. This is not the point of digital cinema. Though its history has barely begun and its forms have been diverse, it is certainly the case that the digital cinema is not directly concerned, at least not in the Bazinian sense, with preserving the real. Before considering this, however, we must inspect Bazin's argument further to see how his cinema also goes beyond documentation or mere re-presentation to allow for a medium whose ontology presupposes its transfiguration of the natural world.

The meaning Bazin assigns to that transfiguration is evident in a statement that will resonate throughout this text and in the final chapter will aid us in reconnecting the disjunction between the Bazinian cinema and the digital cinema. Bazin says,

> All that matters is that the spectator can say at one and the same time that the basic material of the film is authentic while the film is also truly cinema. So the screen reflects the ebb and flow of our imagination which feeds on a reality for which it plans to substitute. That is to say, the tale is born of an experience that the imagination transcends.[iv]

While being based in the material of the real, film is structured by its maker to advance some set of ideas or ways of cognizing an event or story. In this way, "[Cinema] actually contributes something to the order of natural creation instead of providing a substitute for it."[v] Let us consider Bazin's statement with respect to the Kantian notion that the world of objects as things-in-themselves is entirely closed off from the human subjectivity.

In the second introduction to his text, *Critique of Pure Reason*, Kant argues that, "Though all our knowledge begins with experience, it does not follow that it all arises out of experience."[vi] This position, which comes in response to the failures of two philosophical movements that preceded him, seeks to connect Empiricist notions of experiential knowledge with the equally problematic and opposing model of the Rationalists, which supported the notion that all knowledge must be derived from pure reason alone. In Kant's Copernican Revolution, he offers the following claim,

> Hitherto it has been assumed that all our knowledge must conform to objects. But all attempts to extend our knowledge of objects by establishing something in regard to them *a priori*, by means of concepts, have, on this assumption, ended in failure. We must therefore make trial whether we may not have more success in the tasks of metaphysics, if we suppose that objects must conform to our knowledge. This would agree better with what is desired, namely, that it should be possible to have knowledge of objects *a priori*, determining something in regard to them prior to their being given.[vii]

Kant offers the suggestion that the mind possesses certain predetermined structures, called pure intuitions and concepts, by which we order our sensory experience of the world to make knowledge. In Kant's model, space and time do not belong to the

objective world but rather to the mind's pure intuitions, or to put it another way, to the nature of our mental construction. He says,

> The effect of an object upon the faculty of representation, so far as we are affected by it, is *sensation.* That intuition which is in relation to the object through sensation, is entitled *empirical*. The undetermined object of an empirical intuition is entitled *appearance*.
> …
> That in which alone the sensations can be posited and ordered in a certain form, cannot itself be sensation; and therefore, while the matter of all appearance is given to us *a posteriori* only, its form must lie ready for the sensations *a priori* in the mind, and so must allow of being considered apart from all sensation.
> …
> The pure form of sensible intuitions in general, in which all the manifold of intuition is intuited in certain relations, must be found in the mind *a priori*. This pure form of sensibility may also itself be called *pure intuition*.[viii]

As such, Kant entitles the mind "the law-giver of nature." By this he means that space, time, causality, identity and so forth are nothing beyond contrivances of the mind that allow us to order our experience meaningfully. If Kant is correct, then we may take Bazin's statement to imply that when a film advances a particular interpretation of some event in its compositions and juxtapositions, its product does not simply repackage pre-existent structures of reality, which were present in the recorded material itself. Rather, the cinematic process creates something new – something that itself adds to a viewer's understanding of the world and the concepts under which he orders that world. By Kant's model, reality as such has no meaning in-itself. For our purposes, the real simply exists because we can know nothing about its true nature. But, while reality has no inherent meaning, we may say that the act of making art is one of conferring meaning upon the reality to which that art refers.

The unique property of the cinema is that while its maker bestows interpretation upon the work, the source of its production is a mechanical process. Bazin says,

> The objective nature of photography confers on it a quality of credibility absent from all other picture-making. In spite of any objections our critical spirit may offer, we are forced to accept as real the existence of the object reproduced, actually *re*-presented, set before us, that is to say, in time and space.[ix]

To be careful of Kant's model, we should add to Bazin's statement that photography re-presents its object in *the appearance* of time and space as they are given by the mind similarly for the experience of the actual world as for its cinematic representation. But even this is a marked ontological advancement over the preceding mediums of visual representation. For painting or animation, the viewer cannot refer through the work to the originating object that is being represented. He cannot check such a representation against the fact of its origin. For film, the viewer has no choice but to do so. If, for example, we were to view slow-motion footage of an explosion, we would be aware that the temporal element of this film was not in proportional correspondence with the natural temporal reality we would confer upon this event in its unmediated experience. An animation does not necessitate such a comparison, as we know it to be synthetic and therefore bears no certain correspondence to anything beyond itself.

2. The Indexical Cinema

Working from the conception Bazin and his predecessors held of the cinema, it is clear that it is a medium quite unlike those that came before it. For one thing, there is the matter of the integral nature of a technological device, which makes the medium at all possible. Only in the most basic sense is this true of the plastic arts. While painting requires brushes, pigment and a surface on which to paint, these tools may be crudely defined as a stick, dirt and the wall of a cave. The cinema requires innovations that were not possible until the late 19th Century, namely a light sensitive chemical emulsion, a flexible material that can be passed through the workings of a camera, and a camera that can exchange frames at regular intervals for an extended duration. Clearly, for reasons of its dependence upon certain technological innovations and its inherent automatism, it is impossible to consider the film medium apart from its mechanism.

Yet, many readings of that dependence have been to some degree misguided. Erwin Panofsky claims in his essay, *Style and Medium in the Moving Pictures*, that, "It was not an artistic urge that gave rise to the discovery and gradual perfection of a new technique; it was a technical invention that gave rise to the discovery and gradual perfection of a new art."[x] Putting his usage of the term 'art' aside, Panofsky's assertion implies that the desire for a medium of direct and objective recording was only engendered after such a medium became technically possible. Clearly, this is not the case. One refutation of his point is evident in earlier attempts at achieving this basic aim through the use of the camera obscura in the practice of painting. As early as the 15th Century, artists attempted by these technical means to affix the objective image of the

world to canvas without the intervention of their interpretations of objects. By mimicking the forms and colors of the light cast upon a canvas by the camera obscura, these practitioners essentially achieved an early form of photographically objective and indexical recording. But even to point to a preceding technological attempt at the fulfillment of this indexical desire is not necessary. Since Plato, the earliest practitioner of Aesthetics, was occupied with the discovery of things-in-themselves or their essential forms, it should be clear that the desire for an objective recording did not begin when the process by which that would be possible was accidentally happened upon in the 19th Century.

The cinema is much more a fulfillment of original desires of representation than Panofsky claims it to be. The filmmaker Peter Kubelka notes that the original form of man's communication was the act of pointing.[xi] Before verbal language, people communicated through gestural acts of pointing to something of danger to the group, something they desired or something they found beautiful. It is this final function of pointing to a natural beauty that marks the origin of the cinema. The implicit notion in Bazin's *Ontology of the Photographic Image* is exactly that - the filmmaker communicates what pleases him not by describing it, not by fabricating a likeness of it, but by referring to the object itself. What the technological innovation of the cinematic mechanism adds to the act of pointing is that unlike the cave man, the filmmaker can point to something that exists elsewhere or no longer exists at all. He may preserve that which he points to by capturing its optical impression. As Bazin says, the filmmaker points to an actual existence, "the object freed from the conditions of time and space that govern it."[xii] He embalms it, saving it from the passing of time.

The notions of pointing, with which we are here concerned, in both the literal act and in the cinematic mode, constitute a particular class of signs or representations that the logician Charles Peirce defines in his text, *Logic as Semiotic: The Theory of Signs* as *indices*. His definition of an index is as follows:

> [An index is] a sign, or representation, which refers to its object not so much because of any similarity or analogy with it, nor because it is associated with general characters which that object happens to possess, as because it is in dynamical (including spatial) connection both with the individual object, on one hand, and with the senses or memory of the person for whom it serves as a sign, on the other hand.[xiii]

It is at first counter-intuitive to consider a photographic image to be indexical by the above definition. Certainly there is a sense in which a photograph holds similarities to the object it depicts. When presented with the photograph of some particular person with whom we are personally familiar, we immediately recognize that person. Yet, what properties can we say are shared by that person and his photographic image? One is constituted of flesh while the other is made of paper. So, it is not an actual similarity of beings that allows us to connect a picture with the object it depicts. Rather, it is that, "this resemblance is due to the photographs having been produced under such circumstances that they were physically forced to correspond point by point to nature."[xiv]

Peirce cites demonstrative pronouns such as 'this' and 'that' as examples of indices.[xv] Demonstrative pronouns are linguistic terms that may be directly associated with the sort of literal pointing discussed earlier. These words are used to draw attention to something occurring in the world. Using the term 'this' causes the reader to look at the sentence or word that preceded it and substitute for it the referent clause. For such indices, it is necessary that the referent clause be materially accessible to the reader at the time of his encounter with the index. One cannot say, "Look at this," without that thing

being present for inspection. A photographic image is rendered by the objective qualities of optical and photochemical law, which fix the shadow cast by an object onto the light-sensitive emulsion of film, thereby making a permanent indexical referral, which may outlast the referred object itself. The substitution made by a photographic image does not require the co-accessibility of the object. Therefore, the photograph may act as objective proof of a depicted event after that occurrence has passed.

3. The Iconic Mediums

It has been said by such theorists of modern art as Clement Greenberg that photography helped to free the plastic arts from their obligation to the depiction of objects as they appear in the world. If this is true, it is because with the existence of an effective indexical medium, painting's possibilities could be seen as they really were. 'Realistic' painting does not achieve, nor does it strive for the same representational connection with its depicted object as photography. By Peirce's semiological definition, painting and sculpture are mediums of a primarily iconic nature. He defines an icon as such:

> An icon is a sign which refers to the Object that it denotes merely by virtue of characters of its own, and which it possesses, just the same whether any such Object actually exists or not.[xvi]

Unlike indices, icons are not bound to the existence of what they represent. Rather, they are entities, which are in some way similar to their objects. Peirce notes that, "It is true that unless there really is such an Object, the icon does not act as a sign; but this has nothing to do with its character as a sign. Anything whatever, be it quality, existent individual, or law, is an icon of anything, in so far as it is like that thing and used as a sign of it."[xvii] By this key stipulation, Francis Bacon's depiction of an unearthly monster, for instance, would be iconic as its figure holds properties that are in some fashion like those of a creature of actual corporeality. But since the nature of iconicity does not necessitate a representation's correspondence to an actual existence, painting may distort the representation of an object to confer any meaning upon it whatsoever. The cubist work of Pablo Picasso illuminates this notion further. By depicting a visual world much

like our own, but distorting the simultaneity of multiple spatial perspectives in a single temporal instant, Picasso allows us a certain realization about our experience of the world. By the comparison of Picasso's icon to the Object of actual existence, the viewer is made aware that his mode of experience is held in a singular spatial and temporal perspective because he has something quite like it but also wholly different to which he may compare it.

The possibility for art in iconic mediums such as painting comes by the fact that through their iconicity, they may transcend the limitations of the real and depict anything whatsoever. Yet, a difficulty that arises for the viewership of iconic works is that this possibility of transcendence in the image does not necessarily imply the spectator's corresponding capacity for the experience of that transgressive representation in the mode of its deviation from our natural perception. In the preface to the first edition of *Critique of Pure Reason*, Kant says, "Human reason has this peculiar fate that in one species of its knowledge it is burdened by questions which, as prescribed by the very nature of reason itself, it is not able to ignore, but which, as transcending all its powers, it is also not able to answer."[xviii] The implication of this statement in the matter of viewing a cubist work of Picasso, for instance, is that by the Kantian model of our mental composition, even if we can apprehend an image that defies our natural model of experience in single-point perspective, we cannot necessarily comprehend that image's organization of time and space, which is contrary to ours. According to Kant's view, as we have seen, we are limited in our mental faculties to certain necessary governances of human perception, namely, the pure intuitions and concepts of the mind. For this reason, it is difficult to term any painting as truly 'abstract.' While an abstract painting may get away from the

depiction of some particular object such as a person, the viewer will naturally try to establish a spatial and temporal organization of the depicted figures, thereby treating them as though they were representations of objects in reality, which bear the load of all Kantian a priori conditions. So the viewership of even the most unworldly iconic image cannot be removed from the same laws of mind that govern our perceptions of actual experience. The difficulty of this problem, as we shall see, will be key to our later discussion of the digital cinema.

The true import of painting, as it was realized in the 20th Century, is its ability to depict anything imaginable, whether that thing stands for any single object of actual existence. But even if it does not, the icon maintains some correspondence to the objective world by virtue of the fact that at least in terms of its figure's general adherence to our imposed a priori structures, it is in some way an object like any other. So, like indices, icons demonstrate by their nature the existence of objects in general. But unlike photography, painting is not bound to what does exist in the world so much as what could exist as object. If this is the strength of its nature in art, then conversely painting's inherent limitation is that it does not bear the "truth factor" of photography - we are not forced to believe that an icon does correspond to any particular object in the world.

4. The Digital Cinema as a Hybrid of Icon and Index

The strengths and limitations of iconic and indexical modes of representation seem to oppose one another. While the index confers the truth of an existence, it must be bound to that truth so far as it given by depicted object. Therefore, the index cannot depict that which is not actually found in the world. The icon, on the other hand, may depict anything as a supposed existence in the world, but because it is only an icon of something if it happens to bear resemblance to that thing, we can confer no truth upon its correspondence to any depicted object. In the technological advancements of computer technology, though, it appears that the hybridization of the properties of index and icon is possible in some capacity.

In establishing his theory of signs, Peirce is careful to note that his doctrine is only "quasi-necessary." He explains this by saying:

> I mean that we observe the characters of such signs as we know, and from such observation, by a process which I will not object to naming Abstraction, we are led to statements, eminently fallible, and therefore in one sense by no means necessary, as to what *must be* the characters of all signs used by a "scientific" intelligence, that is to say, by an intelligence capable of learning by experience.[xix]

So, in the text's forthcoming hybridization of index and icon, we must be careful to note that the distinction is only a "quasi-necessary" one, but that from the appearance of things, it seems proper to distinguish, at least for the purpose of succinctness, a term for the combinatory form of two signs that are otherwise mutually exclusive. The term that will be henceforth used to refer to the digital cinema's mode of representation is the *photo-icon*.

The computer-generated imagery used in many recent Hollywood blockbusters is neither truly photography nor painting. Traditional cinema is purely indexical, while traditional animation, including 3D animation, is purely iconic. What comes between these signs – images that mix cinema and animation – is what we will call the digital cinema, whose semiological class is photo-iconic. Since this class is made of the combination of two others, we must understand that a continuum exists between that which is "mostly indexical" and what is "mostly iconic." Yet, because anything on this continuum will defy at least some portion of the definition of index or icon, we will refrain from referring to the images of the digital cinema as anything other than photo-iconic.

A photo-icon is a representation that purports the indexical authenticity intrinsic to the photographic image while containing elements not genuinely derived from the natural world. We will later go on to describe a wide variety of possible forms this sign may take. For now, though, we will use the example of the insertion of a computer-generated character such as Gollum into live-action footage of real actors and environments. A Gollum sequence for *The Lord of the Rings* was produced in the following manner. First, the actors were filmed on location in the mountains of New Zealand. For the purpose of naturalism, they were filmed interacting with an actor portraying Gollum, who would later be replaced by a computer-generated model. Along with this live-action footage, precise data was taken on the movement of the camera and lens with respect to the depicted objects. Later, a replica of that environment was produced in a 3D computer application that models the forms of objects and their interaction within the physical dynamics of gravity, momentum and optical law. This

computer application may be said to produce an icon of the world it represents as it mimics the properties of that world to produce a likeness of it. In this application, Gollum is modeled and animated and then inserted into the live-action footage with the aid of the recorded camera movement data through a process called compositing. The Gollum stand-in is painted out, along with any unsuitable remnants of the production that found their way into the footage. Finally, the Gollum element is color-corrected and simulated film grain is applied to match the live-action element. The product is the seamless blend of a photographic image with the iconic medium of computer modeling.

In its uses in Hollywood films, the photo-icon is a special effect or a trick. Though the industry congratulates its achievements in digital "trickery," thereby calling attention to its being that, the films of digital cinema aim to make their work as invisible as possible. This is to say that for their desired affect to be achieved, the viewer must to some degree accept the images of the digital cinema as being of the same reality as anything depicted photographically. In a later section, we will discuss more sinister uses of the photo-icon in the production of images that seek to entirely mask their identity as anything other than pure photography. For the time being, though, it will be sufficient to consider the affect of computer-generated imagery within the confines of a film's mise-en-scène. We may reasonably do so because to deny such an approach would similarly deny our ability to discuss the material of traditional cinema as realistic or believable. Certainly the viewer of any traditional film is aware of the unreality of the situation – that just beyond the edge of the frame are studio lights, that the actors are actors and so forth – but this does not detract from the fact that what occurs in front of the camera did actually occur. So in discussing digital cinema, we must take for granted that the

filmmaker basically intends for us to take the image as photographically real and that the viewer in turn accepts this charge to the benefit of his mimetic experience.

Within the confines of the digital cinema's mise-en-scène, the image must be accepted to wholly support its identity as photographic. So, the photo-icon blends the features of its parent signs, icon and index, to allow the depiction of anything imaginable in the appearance of photographic reality. But since it may be used to depict anything whatsoever, we must recognize that a wide spectrum of the manifestations of its employment on the continuum of indexicality to iconicity will surely arise. Therefore, with the purpose of further delineating the identity of the photo-icon and the breadth of its potential, we will here make some distinctions of its potential uses.

The first distinction we must make between the types of photo-iconic employments is the division of what we will refer to as the *indexically possible* and the *indexically impossible*. The indexically possible uses of the photo-icon are ones that could in ideal be produced by purely photographic means, but for a variety of reasons are not. As subsets of the indexically possible, we will term the *indexically probable* and the *indexically improbable*. Indexically probable images are ones that could currently be produced by photographic means, but are instead made by computer-aided process. An example of this class would come from the instance in which a film requires the setting of a winding country road that leads to an enormous mansion, but for whatever reason a suitable location has not been discovered. It is likely the case, though, that such a location could be found or built if necessary. But, for reasons of cost, the filmmaker employs computer-generated imagery to construct his location. Many of the uses of the indexically probable photo-icon are decided upon for reasons of cost and convenience to

the production. Indexically improbable images, on the other hand, are ones that represent something that could exist but does not. What is here meant by *could exist* is a broad notion. The represented object of an indexically improbable photo-icon might be something like a creature such as Gollum or a location such as Middle Earth. If such things existed, they could be rendered photographically. The fact that neither Gollum nor Middle Earth exists is not a matter of what is possible in photographic terms. They could be rendered photographically because if they did exist, they would be corporeal in the same way that anything of our world is – film emulsion would be capable of capturing their forms. So the indexically improbable usage of the photo-icon pertains to the imaging of something that while not existing could exist at least so far as the camera is concerned.

Still remaining is the class of the indexically impossible photo-icon. Aside from the issue that distinguished the indexically probable from the improbable, the indexically impossible category of the photo-icon pertains to images that could not be produced even if their objects were in actual existence. An example of an indexically impossible image is the "bullet time" effect in the film *The Matrix*. In this sequence, the camera flies around a character frozen in time as he leaps through the air. This effect could not be produced in the objective world. Naturally, a camera could not move so quickly around an environment as to turn a single instant into a several second duration. Even though the content of this image – the environment and performance of martial arts - is otherwise possible, the fact that the camera could not physically perform the necessary movement makes this image indexically impossible. Further instances of the indexically impossible are difficult to enumerate here. As we saw in the section of this text dealing with iconic

representations such as Picasso's cubist works, an image that transcends our Kantian mode of perception may be available to apprehension but not necessarily comprehension. As with the cultural integration of Picasso's work, though, such transgressions are eventually accepted by common discourse as part of an evolution of representational thinking. So while more advanced indexically impossible sequences than "bullet time" will undoubtedly come into existence, it is difficult to preempt their natural evolution here. But, in the final chapter of this text, we will discuss how that essentially linguistic evolution will occur in the practice of the digital cinema.

As subclasses of the indexically impossible photo-icon, we must distinguish the *worldly impossible* and the *unworldly impossible* to separate those images of indexical impossibility whose object is itself probable - the worldly impossible - from those whose object is not. By these stipulations, the "bullet time" effect as it is employed in *The Matrix* would constitute a worldly impossible, indexically impossible photo-icon. An example of the unworldly impossible might be a sequence that deviates from our natural spatial and temporal modes in a form of free indirect discourse that attempts to describe the perceptions of a non-existent creature whose mental construction is quite unlike our own.

The subclasses of the photo-icon present the diversity of forms through which the digital cinema may produce its representations. All of them, however, share the property of their being hybrid forms that combine the indexical and the iconic. It is this property that makes the digital cinema a medium ontologically incongruous with the cinema that preceded it. In the *Critique of Judgment*, Kant states that, "A natural beauty is a *beautiful thing*; artificial beauty is a *beautiful representation* of a thing."[xx] In returning to Bazin's

statement that photography's affect upon its viewer is like that of nature itself, we see just how different the digital and traditional cinemas are. Kant continues by saying:

> In order to judge of a natural beauty as such, I need not have beforehand a concept of what sort of thing the object is to be; i.e. I need not know its material purposiveness (the purpose), but its mere form pleases by itself in the act of judging it without any knowledge of the purpose.[xxi]

By the Bazian implication of Kant's statement, we react to the material of the traditional cinema as something that pleases by its mere form. Clearly, Bazin would not argue that a work of cinema is so much a part of nature that it does not require analysis. But this difficulty only arises after the automatic work of the mechanism is completed. So, in the cinema's pure capturing of the world, there is a sense in which the explanation of an image's purpose is not necessary. The viewer is automatically connected to the represented object. While questions of why an image is shown in a particular context remain necessary, we require no inquiry into what the image itself represents. Therefore, we may take pure pleasure in an object removed from its spatial and temporal context. This point is proven by recalling that in the early days of cinema viewers relished the experience of seeing motion of the world in films that offered little more.

Viewing the motion of a tree in the wind depicted in the traditional cinema requires no explanation. We know what the depicted object is and we know the ontology of the medium that brings it to the screen. This is not the case for the photo-iconic images of the digital cinema. The viewer must either accept the image as being photographically real and thereby miss the point of its ontology, or he must question the root of what he views and therefore be removed from the simple pleasure of viewing. This shows that the most important facet of the photo-icon's being is that its nature and origin must always be unclear to the viewer. In the practices of Hollywood spectacle,

deception is in accordance with the general aim of achieving awe rather than inducing inspection. But, the unsettling origin of the photo-iconic image is a necessary concern for the artist of that medium.

The Myth of Total Reality

New creatures fly past, out of the starting gate forever.
John Ashbery, *Girls on the Run.*

1. The Total Cinema and its Myth

In a succinct refutation of Panofsky's claim that, "It was not an artistic urge that gave rise to the discovery and gradual perfection of a new technique; it was a technical invention that gave rise to the discovery and gradual perfection of a new art," Bazin argues that it was by mere historical accident that the technological advances necessary to the fulfillment of cinema's creation occurred when then did.[xxii] In his text, *The Myth of Total Cinema*, Bazin says,

> Any account of the cinema that was drawn merely from the technical inventions that made it possible would be a poor one indeed. On the contrary, an approximate and complicated visualization of an idea invariably precedes the industrial discovery which alone can open the way to its practical use.[xxiii]

His comment is not merely a general one countering the notion that any idea would be preceded by the innovation that makes it possible. Bazin is also specifically arguing that the cinema as an actualized medium stems from ancient desires, which were present in the minds of artists long before the medium itself became technically possible.

In support of this claim, Bazin argues that the innovation of cinema was a goal no more pressing to the world of the late-19th Century than it was for Renaissance artists. Of course, Bazin did not believe that the innovation of cinema was actually as likely in the 15th or 16th Century as it was in the 19th Century. Yet, the anachronistic hypothetical he suggests is an intriguing one. There is indeed a case not so much for the likelihood of an earlier formation of the cinema, but for its conceivability if any technical considerations were removed. Perhaps the best argument for such a historical reversal comes in relation to the views of Kant, which served to disrupt any previous notions of objectivity. In his *Critique of Pure Reason*, Kant advocates for the human mind as the *law-giver of nature*.

By this he meant that a person's perceptual experience of the world is centrally governed by certain pure intuitions and concepts of the mind, which exist a priori and allow for experience to be at all possible. This metaphysical concept stands in stark opposition to the Empiricist view of Kant's predecessor, David Hume, who believed that all knowledge was derived from sensory experience. While Kant's view centers itself upon the mind's interpretation of an unknowable world, Hume's model seems consistent with notions of the cinema as an essentially automatic and objective mechanism that serves to indexically connect the rendered object with the senses of its viewer. As Bazin readily supports, the cinema is first and foremost concerned with the ability to re-present the appearances of objects in the world – a phenomenological task much more simply explained by Hume's model than by that of Kant, though his model by no means negates photographic possibility.

Bazin is led to ponder why the emergence of the cinema occurred as it did since such an a-historical trajectory as he suggests is at least conceivable. He asks, "How it was that the invention took so long to emerge, since all the prerequisites had been assembled and the persistence of the image on the retina had been known for a long time."[xxiv] Bazin concludes his paper by claiming that it was essentially by mere accident that the cinema came into existence in the manner it did because both the technical requisites and the philosophical desires were pre-existent to the innovation itself. He says,

> This historical coincidence can apparently in no way be explained on grounds of scientific, economic, or industrial evolution. The photographic cinema could just as well have grafted itself onto a phenakistoscope foreseen as long ago as the sixteenth century. The delay in the invention of the latter is as disturbing a phenomenon as the existence of the precursors of the former.[xxv]

This argument for the a-historical development of the cinema then follows into Bazin's main point for his text, *The Myth of Total Cinema*.

By Bazin's estimation, the cinema stems from an ancient desire to represent the world in the objectivity of its own image, which explains his labor in trying to prove the historical coincidence of the medium's inception. To redirect Bazin's point towards its correspondence with the medium's historical progression as it did actually occur, it may be useful to put the cinema's ontology in terms of post-Kantian philosophy. We may see that Kant's model of the perceiver's relation to an object produces a more complex phenomenon for what occurs in the viewing of a photograph than Hume's model, but by no means does it contradict any aforementioned notions of photographic indexicality. In *The Critique of Pure Reason*, Kant argues that,

> For we are brought to the conclusion that we can never transcend the limits of possible experience… This situation yields, however, just the very experiment by which, indirectly, we are enabled to prove the truth of this first estimate of our *a priori* knowledge of reason, namely, that such knowledge has to do only with appearances, and must leave the thing in itself as indeed real *per se*, but as not known by us.[xxvi]

So in Kantian terms, the objective world in-itself is entirely unknowable to the human mind. The sensorial input of vision is organized into concepts of objects and their relations, including causal, within the application of spatial and temporal a priori structures given by the mind. A photographic image as an indexical representation refers to physical objects through point-by-point correspondence and renders their material *appearance* in the emulsion of its film. The viewer organizes the relation of objects encountered in a photographic image by the exact same a priori structures of the mind as for objects encountered by his own empirical experience of the world. Therefore, to consider the viewership of photographic objectivity in Kantian terms offers no difficulty

beyond that of ordinary and unmediated perception. Such an interpretation also offers no further difficulty to the pre-conception of the desire for such a medium. Instead, advancement of the mechanism will only serve to further extend the possible experience present to its viewer. Since there is no limit to the degree of the mechanism's enhancement, the viewer's sensorial experience may be infinitely expanded. So the initial development and successive technical improvements of the cinema bring the medium closer to fulfilling its original aim of providing complete empirical knowledge of the world as it has existed – an empirical knowledge that is then left to its viewer to cognize and order by the structures of his mind.

The perceived endpoint of indexical totality must necessarily be an unreachable goal as no innovation can produce an image that can be suitably called the total representation of its object's material appearance. Bazin calls this imagined endpoint *the myth of total cinema*. He says,

> The guiding myth, then, inspiring the invention of cinema, is the accomplishment of that which dominated in a more or less vague fashion all the techniques of the mechanical reproduction of reality in the nineteenth century, from photography to the phonograph, namely an integral realism, a recreation of the world in its own image, an image unburdened by the freedom of interpretation of the artist or the irreversibility of time.[xxvii]

For if the photographic image as an index provides, as Peirce argues, a direct link between "the individual object, on one hand, and the senses or memory of the person for whom it serves as a sign," then what may we call the definite end of the index before reaching the actual object itself?[xxviii] As we have already seen in Kant's views, the object itself can in no way be accessible by an indexical process or by any other means whatsoever. Instead, the knowledge produced by the synthesis of a priori intuitions and concepts with the experience of viewing a photographic image is limited to some

indeterminate point anterior even to a complete knowledge of an object's appearance. With increasingly precise mechanisms, however, we come ever closer to the knowledge of an object's appearance. Bazin likens the myth of total cinema to another myth, that of Icarus, to provide a metaphor for the impossibility of cinema reaching its ultimate aim. This comparison to the myth of Icarus is an apt one. Like Icarus, we cannot see the sun, but only the rays that engulf it and extend from it. This draws us nearer, putting us in the path of a greater and greater number of its rays, which in turn overwhelm our eyes and prevents us from ever reaching their source. Bazin states that, "Every new development added to the cinema must, paradoxically, take it nearer and nearer to its origins. In short, cinema has not yet been invented!"[xxix]

The difficulty that arises in the matter of appearances and which makes the notion of total cinema a conceptual impossibility is that there is no definite endpoint for an object's appearance. In his *Critique of Judgment*, Kant makes a distinction between what he calls the *beautiful* and the *sublime*. He defines the beautiful in the following way:

> The beautiful in nature is connected with the form of the object, which consists in having [definite] boundaries.[xxx]

He defines the sublime as:

> The sublime is to be found in a formless object, so far as in it or by occasion of it *boundlessness* is represented, and yet its totality is also present to thought.[xxxi]

In the time of Kant's writing, appearance as it pertains to sight was of a much different nature than it is today. The technological capabilities of imaging have served to enhance the mechanisms of our perceiving organs and therefore have affected the conditions by which we may term the beautiful in opposition to the sublime. In the *Analytic of the Sublime* section of *Critique of Judgment*, Kant argues that judgment of the beautiful

requires an external ground pertaining to our relationship to the viewed object. "We must seek a ground external to ourselves for the beautiful of nature, but seek it for the sublime merely in ourselves and in our attitude of thought, which introduces sublimity into the representation of nature."[xxxii] So the matter of the beautiful with respect to a certain object pertains to its being viewed in comparison to other objects. In our natural sight, as was present for Kant, that comparative object may always be found. But when our viewing of an object is mediated by its representation in photographic image, such a ground does not necessarily exist. An object may be presented in photograph without the context of other objects. In catalog photography, a familiar object such as a coin is placed in frame to show the size of the object being sold. But if we are not given such a ground, then in looking at an extreme close-up of cellular material, for instance, we may be as inclined to believe that representation is of an entire galaxy as we are to realize its actually being of a scale much smaller than ourselves.

The mechanisms of technological enhancement of the perceptual organs serve to disrupt the ground upon which the beautiful apparently must be based. The external ground is impeded by the fact that the contour of any object goes infinitely inward by its fractal nature. The scales at which we naturally view an object are only a few of infinite possible viewpoints. With the extensions of microscopes on one hand and telescopes on the other, we can always represent an object at any degree of proximity. With these enhancements, it becomes clear that no object truly has definite boundaries with respect to its form as Kant claims is necessary to that concept in his definition of 'beautiful.' Rather, the contour of any form is necessarily analog – its definition does not terminate. Upon reaching a sub-molecular level, we may look even closer if the proper device is

available to us and find a new order of form in the appearance of a single quark. Only for the unaided eye does it seem to be the case that there is a definite class of objects that we may comprehend as beautiful by virtue of their being on par with the scale of our own natural being.

Upon the realization that we may go infinitely closer to an object, we must question the idea of the total representation of an object's appearance. Clearly it must be the case that no image could simultaneously show the sub-molecular structure of a portion of some object, thereby rendering it sublime, and its whole, making it beautiful. By these terms, the total cinema persists in its status as myth.

Another difficulty arises from cinema's capacity to produce representations of actual objects for which the viewer cannot comprehend its scale. In just over a century, the cinema has seen technological advancements that brought it from the crude, flickering, black & white, defocused and soundless existence of its early history to the contemporary extreme of the IMAX experience of incredibly sharp focus and color displayed on an all-encompassing screen and accompanied by digital surround sound that mimics the dimensionality of sound-space. In the case of the IMAX experience, however, it seems Icarus has not necessarily drawn closer to the sun. While the crude cinematic recreations of Louis Lumière's films have imperfect relations to their objects because of their technical impreciseness, IMAX films suffer from the opposite difficulty. IMAX brings the representation of any object it images to a mammoth scale, which at times serves to corrupt the sense we hold of that object's relation to the rest of the natural world. IMAX, we might say, will make a mountain out of any molehill.

The IMAX film is seemingly more advanced than the meager films of early cinema because it simply gives you *more* representation. On a screen that encompasses our entire field of vision, we have a greater opportunity to see both the detail and breadth of a represented object than we do with a small television screen. However, because the IMAX forces us to readjust our grounding scale, the represented objects are perverted from any proximity to their forms as we would otherwise know them through the magnitude of our unaided senses. The IMAX, therefore, seems to divert from the aim that drives the total cinema. The IMAX is driven by its ability to make objects of the world appear to possess a grandiosity we would not ascribe to them otherwise. This is an understandable product of the cinema, of course as, apart from Bazin's view that the cinema has been driven by the desire to pay homage to the objective world, there is also the drive to pay homage by making a spectacle of it.

Eadweard Muybridge's horse experiment, one of the earliest products of the cinema, was completed in 1878, as the legend goes, to settle a quarrel over the question of whether all four hooves leave the ground at any point in a horse's gallop. Muybridge discovered by carefully arranging a series of fifty cameras along a track, which were triggered by the horse's gallop, that there was indeed an instant in which the horse parted from the ground. The true importance of this discovery was not what it showed about the horse, but what it meant for us to be able to reach such empirical evidence through photographic means. However, in Muybridge's work and even more obviously in that of Étienne-Jules Marey, it is clear that the scientific and technological aim was only part of what these early filmmakers wished to achieve. Marey's pelicans allow us to analyze the motion of a bird in flight. But they are also unabashedly beautiful images. This is partly

true because they show the natural world as it actually exists in a time-scale not ordinarily visible to us. That beauty, however, does not come only from seeing what cannot otherwise be seen, but also from our appreciation of the pure fact that the cinema allows us to see such things. Therefore, the beauty of Marey's images is as much derived from that of the natural world as it is from the beauty of cinema's capabilities. Whether through slow-motion photography or the preservation of a movie star long deceased, the cinema delivers the world as it existed before us. This in itself is a powerful notion but, moreover, we relish in having conquered the seemingly inevitable death wrought by the passing of time through the genius of our technological innovations.

2. The Photo-Fit World of Reproductions

Plato, concerned that art with the immediate cause of imitating the physical world would overexcite the viewers' emotions and blind them from reason, sought to limit the artist to representation of the *ideal*. In *The Quarrel Between Philosophy and Poetry*, Book X of *The Republic*, Plato describes the ideal as a product necessarily of divine creation. Each object that exists in the physical world corresponds to the ideal of the object, produced as a singular entity by God. He introduces three forms of an object.

> Now shall we make use of this example to throw light on our question as to the true nature of this artist who represents things? We have here three sorts of bed: one which exists in the nature of things and which, I imagine, we could only describe as a product of divine workmanship; another made by the carpenter; and a third by the painter. So the three kinds of bed belong respectively to the domains of these three: painter, carpenter, and god. [xxxiii]

The problem for Plato is that a representational painting of the physical bed can only be concerned with appearance and not the actual truth behind that objects, which for him is the correspondence of that object to its ideal form. He asks, "Does painting aim at reproducing any actual object as it is, or the appearance of it as it looks? In other words, is it a representation of the truth or of a semblance?"[xxxiv] To this question, we must readily concede that the artist's representation only reproduces the appearance of its depicted object. But Plato is not satisfied with this limitation, believing, unlike Kant, that to some extent we can reach some knowledge of the thing-in-itself. Plato continues,

> Now the god made only one ideal or essential Bed, whether by choice or because he was under some necessity not to make more than one; at any rate two or more were not created, nor could they possibly come into being.
>
> Because, if he made even so many as two, then once more a single ideal Bed would make its appearance, whose character those two would share; and that one, not the two, would be the essential Bed. Knowing this, the god, wishing to be the

> real maker of a real Bed, not a particular manufacturer of one particular bed, created one which is essentially unique.[xxxv]

Therefore, each specific object of physical existence must be considered to be a lesser copy of its ideal correspondence. A representation of a physical object, a painting for instance, would in turn be an even lesser copy of that ideal existence. Plato's contention, of course, can be only supported by the premise of God's existence, which we can neither confirm nor deny. Therefore, we must reason that his argument is faulted by his belief in there being some *reason* to the object-in-itself, which we may not know with any certainty whatsoever.

Plato questions how it can be possible for a sign or representation, in this case a painting, to refer to something that lacks a universal essence, or some set of properties that necessarily define it in exclusivity. If *this* object may be called a bed not only because it reaches the criteria of its capacity for being rested upon but also because it is the name we arbitrarily assign to a particular object, then how can we call another physical object by the same name? Nietzsche may aid us in this dilemma with a statement from his essay, *On Truth and Lie in an Extra-Moral Sense*, which claims that, "Every concept originates through our equating what is unequal. No leaf ever wholly equals another, and the concept 'leaf' is formed through an arbitrary abstraction from these individual differences."[xxxvi] Nietzsche's statement shows Plato's difficulty to be a problem of language pertaining to the naming of objects rather than a problem of objects themselves. If we assume that there is no God to produce the ideal bed, then we can only have particular beds, which for the purpose of communication we must equate through agreed upon traits of definition rather than being stifled by the inescapable differences between each particular object of that name. The ideal of Bed would then be the mental

object of only those agreed upon traits of an arbitrary abstraction from individual differences.

In another sense, however, there is something in Plato's argument beyond the aforementioned linguistic issue that requires further inspection with respect to photographic reproductions. Though the cinema was directly the product of the technical innovations that occurred in the 19th Century, the root of this medium stems from its indexical identity and therefore harkens back to a primitive act of aesthetic communication in pointing to a natural beauty. As we have already seen, though, the cinema adds the capacity for preservation of that to which it points. Let us now ask what the effect would be of constructing a record in photographic permanence of all things to which we may point in the objective world. If we photographed every object in existence and physically wrapped each in its own image to produce a *photo-fit world of reproductions*, then the photographic leaves, cut to precisely cover each real leaf, would blow in the wind as real leaves do. In this way our model would bear resemblance to the natural world beneath. Yet, the sun would not induce a photosynthetic process within these indexical leaves and since no genetic coding within our replicas would spawn further leaves to grow, the meaning of our "complete recreation of the world its own image" would be limited to the recreation of the world in a snapshot, a single instant, one that could not perpetuate itself. Our replica would be hollow – the appearance of the world as it was for some finite and arbitrarily chosen duration.

Whether we wrapped each object in its own image or we simply took a photograph of each object, not bothering to insert it into the landscape we mimic, our representation would be limited not to the autonomy of a structure *like* the world, but

rather to an indexical imprint of the surface of all things. We would be limited to the appearance of each object as it was rendered from a particular perspective in a specific instant. If we were to instead wrap each object with a mechanism capable of displaying cinematic representations, which is to say a representation that records the temporal existence of its object, we would still be limited to the duration of our recording, which must have occurred before having wrapped each object. The indexical mechanism of the cinema cannot record the potentials of those things it records; it cannot imagine the death of a plant from the material of its living appearance. It can only refer to what has already been. This, of course, does not contradict our stated definition of photographic indexicality. Yet, the limitations of this property of pre-existent appearance may not be entirely necessary to a general notion of indexicality. Before providing further support of this possibility in photography, let us consider a linguistic analogue.

As Peirce notes, the demonstrative pronouns such as 'this' and 'that' are examples of indices. They aid in pointing to some object in the world. In their usage within the present tense, they must refer to things that are materially present in order for their use to hold any meaning whatsoever. Yet, the demonstrative pronouns may also be used to refer to the future of a materially of a present object. An example of this is the following. If we visited a friend who was building his own automobile, in looking at it in an early stage of production we might say, "this is going to be a fast car." Such usage of the indexical demonstrative pronoun shows that, at least linguistically, we may meaningfully refer to the future state of an object though its potential is not yet realized. The car has not yet been driven, and yet from the size of its engine I may surmise that when

completed it will be a fast car. Since this is the case of linguistic indices, let us now consider if the same can be true of photographic ones.

If we set out to make the photo-fit world of reproductions and over the course of several years succeed in wrapping each object in its own image, when we returned to the first object we would find the leaf itself to have died from its deprivation of sunlight and air. So, no longer by choice would we be forced to live with our photo-fit simulation of the world. When we recommenced our project of wrapping, we would be left with photographs as the only things to wrap. On that second pass of photo-fitting the world, we would wrap each image of an object in an image of that image. On each pass, our images would become increasingly degraded from their correspondence to actual objects and eventually upon the hundredth pass, our photo-fit world would bear no discernable resemblance to the world we originally covered. This world of indexical referrals would refer back as far as the mind could go only to other replicas. It would eventually reach a state of purely meaningless pixilation - an abstraction of a world now long past, its representation caught in a feedback loop of the duration of its existence we had captured before killing it off. Never could we return to the world of actual objects – the beings of objects destroyed by their appearances. The total cinema, therefore, must truly be a myth - an impossibility of the persistence of the indexical image - one that if it were true would make the world's own persistence impossible.

Plato's notion of an ideal form of an object is a form that would necessarily encompass all past and future potential states of the object. In considering this notion in, for lack of a better word, a genetic sense, we may find a mode of predictive indexicality in the notion of an ideal form. In computing terms, there is a meaning of the word

'image' that refers to an embodiment of a program. This sort of image contains the coding for how that program will respond to the variety of inputs that may be applied to it. This image may be likened to a notion of genetic coding in species. A photographic image of a leaf can only depict the existence of that object as it has already been. But an image of its genetic being, which would be capable of representing not only what that object has been but also the potentials of how it may react to certain stimuli, would be a representation very much in accordance with Plato's notion of the ideal form of an object. It would be this image that could perhaps mark the true limit of Bazin's total cinema - an image referring indexically not only to the surfaces of objects, but also to that which produces their surfaces. Such an image does exist, at least in some respect, in the algorithms of chaos mathematics. Such an image ceases to be purely indexical, however. Such a form of image that refers not only to an object's material appearance but also the material of its genetic coding, which recent science has shown to be at least possible, must in some way also be an analog of that object. Here in this form of image, only now possible in computing terms, is the convergence of index and icon. Here must be the photo-icon – a convergence of appearance, genetics and chaos mathematics.

3. A New Myth, The Myth of Total Reality

In Book X of *The Republic*, Plato claims that physical objects are inferior copies of an ideal form produced by God. If we are to challenge the notion of a divine creation of ideal forms from which all material forms are derived, then we must ask where, if they exist at all, the ideal forms reside. It must be as an object of the mind that the ideal exists – an abstraction produced only in thought by the means of what language will allow: the construction of a notion of 'bed' as it pertains to each physical entity that we may call a bed. In consideration of this, we may ask which of these two forms, the physical and the ideal, has origin. The object of the world – the inferior object – has origin both in the ontology of its physical existence and, as Plato would suggest, in the ideal of the object. The ideal object, however, only refers to itself and to God, whose existence even if true is entirely unknowable to us. So the ideal object must be a hyper-reality, a simulacrum. In his essay, *The Precession of Simulacra*, Jean Baudrillard begins with an allegory from a Borges tale. The story is of a cartographer who constructs a map so detailed that it covers the territory it represents precisely. Eventually, the map becomes weathered and decays into the soil it once enclosed. But, Baudrillard says,

> Abstraction today is no longer that of the map, the double, the mirror or the concept. Simulation is no longer that of a territory, a referential being or a substance. It is the generation by models of a real without origin or reality: a hyperreal. The territory no longer precedes the map, nor survives it. Henceforth, it is the map that precedes the territory – PRECESSION OF SIMULACRA – it is the map that engenders the territory and if we were to revive the fable today, it would be the territory whose shreds are slowly rotting across the map. It is the real, and not the map, whose vestiges subsist here and there, in the deserts which are no longer those of the Empire, but our own. *The desert of the real itself.*[xxxvii]

In the realm of both the sciences and the arts, computer systems capable of processing immense volumes of data are currently being applied to diverse tasks in model-building that range from the simulation of an automobile's performance in an accident to the mapping of human genome sequences to the particle interactions of an explosion. Many of these applications are in-sync with Baudrillard's first allegory of simulation – they attempt to organize data obtained from a physical existence to provide the pathway for an understanding of that existence. Others, such as Hollywood's attempts at modeling explosions occurring in outer space between dog-fighting laser ships, have departed from any correspondence to actual existence. However, upon closer inspection, it seems that even the first group of computer simulations is in greater accordance with Baudrillard's vision of contemporary third-order simulacra than with his first allegory of simulation.

Approaching an application very much rooted in the real, such as a computer generated model that simulates the physical and dynamic interaction of a car with a wall, we may see that the systems of algorithms devised to predict how physical bodies or things-in-themselves collide are a formation of the ideal or hyperreal. Dynamic interactions are in-themselves nothing more or less than the very fact of their truthful existence. Kant argues that we may know certain things about these physical and mathematical truths a priori. The extent to which this is true is to some degree beside the point. Whether from a priori or a posteriori knowledge, we can gain the ability to predict how such a physical event will occur. The algorithms derived in chaos mathematics are formulas or distillations of occurrences that do not, in a pure sense, act by formula, but rather by the nature of their existence and that of natural world, which does not follow law but *is* law.

If the natural occurrence of a physical collision is an analog stream, then the algorithms applied to mimic it are digital integrals that approximate its analog curve. By basing themselves upon algorithms, which produce the same outputs as the phenomena they simulate but which are themselves found nowhere in nature, these computer models create a simulacrum in the mode discussed by Baudrillard. They are anterior to the simulated event, both actually and in concept. The former - an actual anterior relation to the simulated event - may be shown in the example of a car in pre-production, a car that does not yet exist actually, being slammed against a virtual wall. The performance of this virtual model is then fine-tuned and corrected against the problems of the not-yet-existent car's engineering. Later, the actual car is manufactured in accordance with the corrections made to its virtual model. So here it is clear that, as Baudrillard says, the map precedes and engenders the territory it represents. Returning to Plato, in the latter mode of the anterior relation of the simulation to the physical existence – the conceptual relation – the computer-generated simulation may precede its physical correspondence by virtue of the fact that the chaos-generated model describes the law or ideal form of that being while the physical manifestation simply exudes or demonstrates that law. So by Plato's notion of representations, the map would here too precede the territory.

As we have just seen, even computer-generated models of physical existences in some way may be called simulacra or in another sense, ideal forms or essential beings. For other, less practical or perhaps less scientific, computer-generated models that do not strive to correspond to true or particular physical existences, their status as ideal or simulacra is even clearer. Aside from scientific usage, special effects generation is the most prevalent usage of computer modeling. Both the indexically probable subset of the

indexically possible photo-icon and the worldly possible subset of the indexically impossible are uses of computer models quite similar to the scientific models mentioned above. Such usages of modeling things that do easily exist physically in either possible or impossible camera movements, respectively, are of that aforementioned mode of simulation. On the other hand, in the indexically improbable subset of the indexically possible photo-icon and the unworldly impossible subset of the indexically impossible, the images produced by such computer-generated models do not correspond to actual physical existence, either because such existences simply do not exist or because they cannot.

Let us again take the example of the character Gollum from the *Lord of the Rings*. We know that such a species as Gollum does not exist. Yet, there is nothing we can surmise about his being that precludes our belief in the potential possibility of his existence. Within the mise-en-scène of the film, Gollum is a corporeal being, bound by the laws of physics and even those of biology that stipulate the decay of its corporeality over time. As far as we can tell, the only thing that prevents Gollum from existing is that he does not. We can imagine his existence and so we can, in some way, produce that existence, not in corporeal form but in ideal – an ideal that may be represented visually. But unlike Plato's notion of the painter's representation of a physical being, the model of Gollum is not limited to the same facets of appearance with which Plato is there concerned. Nor is the computer-generated model of Gollum limited to the difficulty of appearance we find in the photo-fit world of reproductions. Rather, our model of Gollum may be perpetuated. The virtual image does not refer only to how Gollum's likeness is rendered under a particular light or how he moves when hit by a particular stone, but

includes the algorithmic data for how that virtual corporeality will respond to any dynamic interaction of light or object collision. We may place him in and have him respond to the exact same virtual environment as a model of a human. In the realm of the ideal, we may fully define his existence with respect to the potentials of his interaction with our own physical world as it is modeled by algorithms in virtual space. Furthermore, we may also model his dynamic interaction with a virtual world that does not algorithmically correspond to our own, as is the case of rendering him in an impossible camera move of the unworldly impossible subset of the indexically impossible photo-icon class. In short, Gollum has become an autonomous entity in the ideal state of the computer-generated model.

For the purposes of the digital cinema, this autonomous being, Gollum, may be inserted into a photographically indexical environment. His image is color corrected and simulated film grain is applied so that his image blends seamlessly into the photographic setting. Though perhaps the mechanisms of computer-generated imagery are still crude enough to leave such an image slightly unconvincing, we are nearing the moment when the ability to identify the falsity of such an image will cease. As this approaches, a truly new existence will be born – the photographic existence of a *total reality* or the ability to make anything of imaginable or ideal existence an actual one photographically.

The only difficulty for the computer-generated model as such is that it may only exist in its own form, which resides in data and on a computer screen and therefore is only presented to its viewer as an ideal existence. But this aside, the creature of digital creation is entirely autonomous and his potentials are limited only by the imagination of his maker. Gollum, within the mode of his ideal, is the realization of what the photo-fit

world of reproductions can never achieve. He is the perpetuation of an entity beyond the duration of its material recording. So, the only problem in such an existence is that we have no form by which to him as anything other than ideal. The photo-icon or the possibilities of special effects compositing reverses this limitation. Though Gollum is still not an actual corporeal being, he is convincingly presented photographically. For something to be presented photographically is the (seeming) absolute proof of its corporeality in the world at the time of recording. Gollum is therefore proven to be an actual physical existence, though falsely so, by the photo-iconic medium of the digital cinema.

What therefore arises from this digital possibility is something never before true of any mode of representation. Neither photography nor painting may do such a thing as the photo-icon does. The photo-icon espouses its own myth, not like that of the total cinema's recreation of the world in its own image, but rather a myth of the possibility of the creation and display of any world whatsoever in the seeming image of photographic reality. If the photograph proves the physical existence of an object, then it is by the falsification of these means that Plato's divinely ideal form may descend from the heavens to engender the physical object. After all, could we not reason that if God is the true creator of essential forms he must shroud them in appearances in order for us to cognize them? In special effects compositing, we have found our own godly means to do exactly that.

Let us now return to the two subclasses of photo-icons that bear likeness to the scientific models earlier discussed, the indexically probable subset of the indexically possible photo-icon and the worldly possible subset of the indexically impossible. In

applying these structures to the above ideas of the digital cinema, we see another semiological advantage to the photo-icon. Like the scientific model of the car, which is virtually crashed to anticipate the qualities of its engineering, the ideal form of the virtual photo-iconic model precedes the physical object in the succinctness of its algorithmic form, as we have earlier seen, despite the fact that the model is based upon that object. When used cinematically, this manifestation of the succinct model takes on a character of universality or ideality not possible for the physical object. This is true because the context of the physical object can only be masked to a lesser degree than is the case for its virtual model.

We recall that one of Bazin's notations for the cinema's unique ontology is that its object may be taken from its context within a particular space and time, thereby saving it from the inevitable death of the object itself. Yet, abstraction from context is limited not to a single object as such, but to the object of all that is contained by the frame. The traditional camera knows no edges and can decipher no boundaries. Therefore, it must treat the entire contents of its frame as a single object. For the digital cinema, though, objects may be taken singularly. So in the case of the indexically probable application of the photo-icon, the image of a house may be cut from the desert and inserted into a coastal location. The virtual model goes even further than this cut-and-paste approach, which basically could be produced by non-digital means. To further illuminate this notion, we will require the text of the film theorist Pier Paolo Pasolini.

In his text, *The Cinema of Poetry*, Pasolini shows a certain semiological difference between the index and the symbol that will here be useful to explain the aforementioned capability of the photo-icon. Symbols, namely words, may be used to

describe an object to which they refer as particularly as to describe their most fine detail or as broadly as to simply call them by a general name such as 'hat.' For photography, this is not possible. Since the photographic image is indexical, it refers directly not to the class of objects we may symbolically define as 'hats' but to a specific physical hat. This sign of photographic indexicality, therefore, has no range in the specificity of its description. To show a hat photographically is to show one of a particular style, color, age and moreover, a particular and singular hat. Though, at first, it would appear that the same difficulty arises for an iconic representation in painting, this is not necessarily the case. Since an icon produces a representation that bears resemblance to the object it refers, but also holds its properties without the necessity of that referral, the iconic representation need not refer to a single hat. What still remains beyond this, then, for the iconic representation of the hat is the second level of specificity of description – the particular style, color and age. Here too though, since the icon is not bound to direct correspondence, is the icon free of any set degree of specificity of description. In the works of artists from Francis Bacon to Pablo Picasso, we may see how any true specificity of description in iconic works may be subverted. To look at a painting by one of these artists, before any other consideration is possible we must first decipher what objects are being represented. The forms are distorted, deconstructed or otherwise bleed into one another. In de Kooning's *Woman*, we must struggle to find which lines belong to the figure of the woman and which belong to the surrounding. So in painting, the representation of a hat may be partial or distorted to the point of it being impossible to place the originating object as the root of the representation.

Photography, though, is naturally always tied to its indexicality, as this is what defines its semiological and ontological nature. For the most part, the photograph tells us exactly what we are looking at in a way that no painting does. Since it is indexical and therefore automatic in actual correspondence, we do not need to orient ourselves to the interpretation of the object as it has passed through the mind of its maker. For a painting, we can easily ask how, if at all, a represented object corresponds to the physical object upon which it may be based. Yet, we cannot even know for sure that the painted object does correspond to any actual existence by virtue of that fact that an icon need not. So, when de Kooning sat down to paint his *Woman*, he perhaps had a particular woman modeling for him or perhaps he conceived of his representation from a mental amalgamation of sensorial memories, none taking precedence over any other to the point of our being able to call it a representation of one particular sensorial impression. We might say that de Kooning's painting holds the Kantian mind as its subject more than it does the woman. This is never true of the photograph, which has not passed through the mind of its creator beyond the point of his selecting what portion and locale of the natural world he images. We know immediately where his originating object resides: in the world itself. In this way, there is no secret in the photographic representation.

An object may be masked slightly by the camera being set out of focus - a procedure that would to some extent have the affect of relaying the notion of a hat while making it difficult to discern what particular hat it is. However, only in a practical sense and not in a conceptual sense would this be like the non-specificity of either the symbol or the icon. This is the case because such a photographic image would not be indexing the object itself so much as the convergence of a 'circle of confusion' of an improper

focal length upon the photographic plane of emulsion. It would be indexing a point in the focal field prior to the resolved presence of the object. This creates a practical non-specificity, but not a conceptual one because the image is still indexing *a* hat, but the image of that object does not exist on the material plane of the film itself, but instead theoretically somewhere in front of or behind where the film was placed.

The photo-icon can merge this capability of icon's non-specificity with the appearance of photographic indexicality. In a virtual model, even of an object that would connote the photo-icon being indexically probable, such as the imaging of a house that actually exists, there is the ability to materially abstract away from the specificity of that object. The virtual model precedes its material correspondence, if one exists, in the sense that it defines the laws of an object and is thereby able to alter them, rather than simply demonstrating its laws. So, the virtual model may be written to include only those laws that its maker wishes to include in its photo-iconic representation. The laws of a virtual environment, even those pertaining to physical governances, are not laws themselves but rather algorithms that mimic laws. Therefore, in a virtual environment attraction, for example, is not a co-requisite of mass, as is the case of the physical world. In the virtual environment, we may easily choose to not include the programming of these two features as co-requisite.

So as with the paintings of Bacon, Picasso or de Kooning, a work of the photo-icon can abstract the figural to any degree of non-specificity it sees fit. It may also, in the production of a motion image, abstract away from any particular governances of specific representational laws that would apply to the index's referral of physical objects. Returning to Pasolini, the photo-icon may represent a hat as no more than a vague, black

form upon a figure's head. The artist may also contrive an amalgamation of hats to produce a representation that in some ways, contexts or angles looks like a bowler hat and in others looks like a stovepipe hat. That hat, also in the specificity of its correspondence to the physics of its surrounding context, may be abstracted away from so that while it is night in the film, the hat shines as if it were day. The product, therefore of this photo-iconic representation, is the photographic or specific imaging of a non-particular or non-specific object. The possibilities for this mode of abstraction are only limited to what the artist finds to be meaningful in the poetics of his representation as an abstraction from the physical world.

In a photo-iconic image, the fact that disparate elements are fused into a seamless formation, the origin of its parts hidden by the labor of its maker, must necessarily confuse its viewer in order for its affect to be reached. The viewer of a painting must orient himself to the subjectivity of the artist. He must see first what the image represents and then that it pertains to what it represents. The immediate reaction to a photo-iconic work, on the other hand, should be one similar to the viewing of a photograph – which is to say that its contents should be taken to be of an objective quality. However, if or when it is made apparent to the viewer, as should be the case of photo-iconic art but not of photo-iconic propaganda, that the image is of a falsified nature, then his true puzzlement over the image must ensue. In watching a special effects film, we are aware that the film contains manipulated imagery, but we do not necessarily know which scenes, and then within this, which portions of the image are photographic and which are computer-generated. So orientation to the photo-iconic image is not automatic as it is for the photograph or even probable as it is for the painting. It is impossible without outside

documentation. The very fact of the photo-icon's nature is in its being false, but cryptically so. The ultimate aim of the photo-icon's myth is the creation of all ideal imaginable beings in the appearance of photographic truth and reality. The potentials of this capability in art presently seem limitless.

Evolution of the Language of the Digital Cinema

Roll on, reels of celluloid, as the great earth rolls on!
Frank O'Hara, *To the Film Industry in Crisis*.

1. The Introduction of a Practical Development

In the earlier chapters of this text, an argument was made for separating the ontological modes of representation found in the digital and traditional cinemas. It can be deduced from the distinctions made that the digital cinema shows promise for a future outside the cinema as we have known it. In consideration of André Bazin's powerful theories, we should be careful when speculating upon that development in a way that would seek to disrupt the natural connection of the digital cinema to its predecessor. In his text, *The Evolution of the Language of Cinema*, Bazin raises the following question:

> In point of fact, now that sound has given proof that it came not to destroy but to fulfill the Old Testament of the cinema, we may most properly ask if the technical revolution created by the sound track was in any sense an aesthetic revolution. In other words, did the years from 1928 to 1930 actually witness the birth of a new cinema?[xxxviii]

Bazin points to the fruitlessness of the despair felt by those who believed their medium had been destroyed by the introduction of sound capability. Arguing for composition and montage as the central elements of cinematic ontology, Bazin says, "The cinema that is believed to have died of the soundtrack is in no sense '*the* cinema.'"[xxxix] Lacking in forethought and suffering from an overabundance of nostalgia, those filmmakers and viewers who saw the end of their beloved medium in this technical revolution missed the point that sound capability was ultimately a mere extension of film's trajectory towards the mythical total cinema.

The era of silent film ended not because sound began to dominate the cinematic experience, but because the lack of audio recording in the early history of a centrally indexical and objective medium was an unavoidable imposition caused by the technical

limitations of the time. If there were still those who felt some desire to continue the trajectory of the silent cinema in the sound era, there was nothing to stop them beyond the audience's dwindling enthusiasm for this now quaint form. By comparison, the aversion to digital effects held by some contemporary filmmakers and audiences may be seen as similarly quaint. After all, digital effect, like sound, were not included in the trajectory of the cinema for reasons of technical limitations, though perhaps ones less arbitrarily excluded from that lineage. When Hollywood began to include digital effects in films of the early 1990's, it was amidst their struggle for the reinvention of spectacle against diminishing interest in the medium's old modes of grandeur. Hollywood adapted the capabilities of computer-generated models to its need to produce ever more exciting visual sequences, following on the age-old narrative device of inserting tired stories into new settings or contexts. Digital effects, in this sense, are a continuation of the Hollywood epic tradition.

A significant difference between the advent of sound and digital effects in cinema is that the addition of digital effects does not so easily allow for the co-existence of its preceding form, the traditional cinema. If photographic indexicality has been the King of representation in the 20th Century, then the digital cinema is perhaps Oedipus. Born as the child of index and icon, it was Oedipus's lot to be banished from the kingdom where photography had ruled supreme. Looking more like his father every day, but still his mother's child, Oedipus returns home to kill the king. Like Oedipus, the photo-icon's undoing of photography is a fate unwittingly met, but an inevitable one nonetheless. As the photo-icon improves in the quality of its procedure and as its cultural ubiquity expands, it will become impossible for a viewer to consider any supposed photograph

without skepticism. It is already the case that if one questions the authenticity of a photograph, he will be far more likely to confirm its validity by seeking to know whether the image was submitted by the *New York Times* or the *Weekly World News* than by searching for relics of manipulation in the image itself. The implications of this fact upon the trajectory of the cinema are immense. The ontological beings of the traditional and digital cinema may themselves co-exist, but practical differentiation will diminish completely, making even the experience of quaint throwbacks to a purely indexical cinema the source of skepticism. It is not so hard to imagine this future if we consider that even the digital removal of dust from a scanned photographic negative – the act of eliminating something that was there in the original objective situation – is the production of a photo-icon from a photographic source.

To more fully comprehend the implications of this collapse of photography into photo-iconography, let us consider two contemporary applications of the latter sign. The United States Congress has recently debated the legality of one particularly dubious application of the digital cinema – virtual child pornography. At the heart of this issue is the following dilemma. The foremost reason for the illegality of child pornography is that it subjects a minor to abusive circumstances. But, if the product of this crime could be achieved without the endangerment of an actual child, would there still be moral grounding for the banishment of such an image? The issue is a complex one and the American legal system has not come to general consensus about it. But in opposition to virtual child pornography, we might reason that if an image, by the ontology of the photo-icon, supports the supposed existence of an elicit event, then the viewer of that image must at least in part consider it as though it were real. If this is the case, then we

must conclude that he is virtually committing the same crime as the viewer of real child pornography. This example presents an interesting facet of the societal implications of the photo-icon. Through the myth of total reality, the photo-icon makes the virtual existence of any object or event possible; and by the perceptual merger of the photograph and photo-icon, we may experience the representation of a virtual event in the same manner as an actual one. So, while there is no direct victim to the creation of virtual child pornography, society as a whole is affected by the ability of its citizens to experience things that we deem to be morally reprehensible even if they only exist virtually. This issue extends into slightly less dire terrain with the coming of increasingly photo-realistic narrative films that depict extremely violent or sexual acts. In response, we may offer the age-old refutation of Plato's banishment of the poet in *The Republic*. To Plato's claim that mimetic works would overwhelm the emotions of its viewer, many have argued that the experience of a representative work cannot cause its viewer to act contrary to his nature. Clearly, though, the coming of a representational total reality creates as much possibility for negative applications as it does for positive ones and so we must be careful to thoughtfully consider how we integrate this new capability into our culture.

Another source of difficulty for the collapse of photography into the photo-icon can be found in the following problem. Learning to be skeptical of any image's supposed photographic truth comes with the loss of an important societal tool – the photographic document. Photography has been one of the greatest influences on the political events of the 20th Century. It captured our wars, disasters, famines and elections, allowing the population to draw its own conclusions about those events from the facts of their

documentation. The televising of the 1960 presidential debate, many claim, was the reason for Kennedy's victory in that election. Photographs of the Vietnam conflict played a key role in swaying domestic opinion about the United States' involvement and ultimately aided in our withdrawal. Images of famine in Sudan brought about a global outcry for international aid to that region in the 1990's.[xl] There are countless examples of this phenomenon in the history of the 20th Century.

In the coming of the age of the photo-icon, we must wonder whether photography can still guide our populist notions of democratized objective information. During the 2004 presidential campaign, one of George W. Bush's advertisements, "Whatever it Takes," was proven to contain a falsified photograph.[xli] The image, depicting a crowd of soldiers at a Bush rally, showed some of the same soldiers replicated in several places. With such a precedent, how can we continue to trust the validity of our government's images? We cannot here speculate upon the political influence of the photo-icon in the distant future, but clearly the role of the photographic document in the 21st Century will be quite different from its place in the 20th Century.

We may come to see that the influence of the digital cinema upon the general trajectory of the cinematic medium will be quite different from the affect of the advent of sound recording. So, let us ask the same question Bazin raised regarding sound for the advancements of the digital cinema. Is the technical revolution of the digital cinema also an aesthetic revolution and if so, have we witnessed the birth of a new cinema? Though we must be careful in these proceedings, we may say that indeed we have witnessed the birth of a new cinema. Let us see how this may prove to be the case in a practical sense.

2. The Application of the Photo-Icon's Philosophical Model

It is important to consider the digital cinema in terms of the various notions of mimesis in Platonic, Aristotelian and more modern philosophical contexts so that we may better understand the affect of this medium upon its viewer. Mimesis has evolved in its definition - beginning with Plato's notion of 'imitation' - alongside the development of art practices that provide it with new contexts for which it must seek to find meaningful adherence. Stephen Halliwell comments that,

> From the Renaissance rediscovery, or reinvention, of a central aesthetic concern (first in the visual arts, then in poetry and music) with the methods and aims of artistic figuration, narrative, and representation – in short, with the legacy of ancient mimeticism – right up to the mid-eighteenth-century 'crisis' of mimetic thinking, we find, contrary to many modern assertions on the subject, no single, invariable understanding of mimesis but a whole range of competing and subtly differentiated options.[xlii]

The originating notion of mimesis found in *The Republic* begins in Book III with Plato's concern for how representational work, namely poetry, which is to be the source of education for the future "guardians" of society, goes about that education if mimetic works are inherently deceptive imitations of nature. In Book X, Plato warns of the danger in assuming that the poet has proper knowledge for the education of his audience.[xliii] To explain this danger he uses the analogy to a mirror's image in order to show the deceptive quality of a poet's supposed comprehension of his subject. He reasons that because a painter or poet can produce the likeness of his subject does not imply that he has any knowledge of that subject beyond its appearance. Plato argues that the reproduction of select properties of an original leads to the audience's false impression of that object.

We may find some difficulty in applying Plato's notion of mimesis to the sign of the photo-icon. The notion of mimesis as the imitation of an original cannot be mapped onto the properties of the digital cinema. The very essence of this medium clearly cannot be concerned with that sort of mimetic representation, as the photo-icon is the presentation of that which is without identifiable origin. By Plato's definition, we may say that the photo-icon is the worst form of deceptive representation. Even more than painting, whose representational origin should be understood to be the mind of its painter in consideration of some depicted reality, the photo-icon lays claim to objective portrayal of the real in the manner of photography while insisting upon no particular connection to reality whatsoever. Therefore, the photo-icon is primarily concerned with the act of creation rather than re-creation.

The Aristotelian view of mimesis is quite distinct from that of Plato and perhaps holds greater correspondence to the representational possibility of the photo-icon. In *The Poetics*, Aristotle considers mimesis without direct reference to Plato's view. He takes the central object of mimesis to be the actions of people. While this alone could imply a similar view to Plato's mimesis as imitation, in *Poetics II*, Aristotle makes a notation that seems to deny such an inference. He says, "Since mimetic artists portray people in action, and since these people must be either good or bad (for men's characters practically always conform to these categories alone), they can portray people better than ourselves, worse than ourselves, or on the same level."[xliv] If the use of the term 'ourselves' is taken to mean the set of people in actual existence, then we can infer from his distinction of characters that are better or worse than ourselves that Aristotle's mimetic objects, including characters, are not necessarily imitations of some particular

being of actual existence. Rather, Aristotle states in *Poetics IV* that we take pleasure in and gain knowledge from seeing mimetic representations, even of things to which we have no direct referent. In *Poetics IX*, Aristotle goes even further in his implicit refutation of mimesis as imitation by saying,

> It is for this reason that poetry is both more philosophical and more serious than history, since poetry speaks more of universals, history of particulars. A 'universal' comprises the *kind* of speech or action which belongs by probability or necessity to a certain *kind* of character – something which poetry aims at *despite* its addition of particular names. A 'particular,' by contrast, is (for example) what Alcibiades did or experienced.[xlv]

In this statement, Aristotle make a clear diversion from Plato's warning about the incomplete representation of an object by putting forth the notion that the representation of an idea, by the synthesis of a 'type,' is a more affective means of conveying an idea than the demonstration of it through a factual particular. This is because the properties of a 'type' can be designed to succinctly imply some idea without the extraneous implications of facts outside that particular concept, which would be found in the representation of an actual existence. So, by this reasoning, Aristotle's *Poetics* allows for mimesis to be an act of creation rather than re-creation in accordance with our needs for the photo-icon.

On the basis of Aristotle's conception of mimesis, there are several factors upon which we must ground our comparison of the traditional and digital cinemas. So far in our discussion, the major point of contrast for the two cinemas has been how each renders an object in correspondence to or disjunction from some actual object. But, since the ground of Aristotle's mimesis takes the basic form of representational and particularly narrative art to evoke 'types' or 'kinds,' which is true of both forms of cinema as far as

their narrative content is concerned, we must take steps on this plane to further articulate the distinction between the two cinemas.

A statement made by Bazin in his essay, *The Virtues and Limitations of Montage*, which was quoted in the first chapter of this text, provides the key to a certain similarity between the mimetic forms in traditional and digital cinema. Bazin says,

> All that matters is that the spectator can say at one and the same time that the basic material of the film is authentic while the film is also truly cinema. So the screen reflects the ebb and flow of our imagination which feeds on a reality for which it plans to substitute. That is to say, the tale is born of an experience that the imagination transcends.[xlvi]

What Bazin is saying here is that the cinema in general transfigures its material, whether for our purposes that material is based in objective reality, to imbue upon its viewer a diagetic world to which we can compare our own and build meaning from that comparison. In the films following from the direct influence of Bazin's writing, namely the French New Wave films of François Truffaut and Jean-Luc Godard, the meaning of that mimetic transfiguration is clear. The narrative cinema has found as its most predominant feature the ability to allude to a reality that it replaces with something more palatable to our perceptions, which is a world limited in scope to a coherent diagesis, ontologically apart from our own world, yet in reference to it. The use of Georges Delerue's grandiose score in *Le Mépris*, for instance, shows Godard's attention to this capacity of cinema. At key moments in the film's dramatic action, the swelling climax of an orchestral composition is imposed upon the narrative space to emphasize the importance of the moment to the internal action as well as to specifically make clear how such a moment is affected by its cinematization.

We have noted that in the relation of a photographic image to its object, the index is the affect or product of that object. But, while the object itself is the agent of that effect, the index inversely affects its object through the production of an interpretant in the mind of its viewer. The object, therefore, is not affected directly by the index, but is affected by the viewer's reconstruction of that object via his mental interpretant derived from the index. Thereby, Bazin's sense of the traditional narrative cinema is centered not towards a mediated viewing of the world, but towards a world mediated by our viewing. In this particular sense, the mimetic natures of the traditional cinema of which Bazin is speaking and the digital cinema are similar. Yet, if we draw the path of each medium's teleology to the inspection of how they reach such an affect, it is clear that their modes and therefore capabilities and limitations within this general outcome are of great dissimilarity.

Though, as Bazin's text shows, the effect of a traditional film may transcend its material root in the substance of the real, we cannot ignore that this root is the very basis of its transcendence. A product of the traditional cinema may only ascend into the Aristotelian mimesis of succinct embodiment by the means of its worldly confines. This is both its greatest strength and limitation. Film juxtaposes the appearances of objects against one another, primarily through the means of montage, to create symbolic associations of those objects and thereby transcend the mere fact of their existence. So while the *affect* of a film may be in accordance with the sort of creative mimesis with which Aristotle is concerned, its *procedure* is, interestingly, in greater accordance with the re-creational form of mimesis described by Plato. That is, the indexical image of the cinema provides us with an experience that imitates an experience of nature so far as its

material is concerned. It is in this point that the mimetic form of the photo-icon diverges from that of the traditional cinema's indexical mode.

Returning to Bazin's discussion of aesthetic revolutions in cinema, we recall that the advancement of sound capability may be seen as an internal development to the trajectory of a total cinema. In terms of the above discussion of mimesis, we might say that sound furthers the re-creative or imitative procedure of its medium, even if, as we saw in the example of Godard's *Le Mépris*, the affect of this act transcends the mere material of the objective world. Therefore, the history of the cinema, even through the Bazinian cinema, must be a progressive development of representational adequacy. Naturally, we may find some objection to this statement, but let us compare the difficulty we find here with its analogue in painting. After all, was it not through mastering perspective and representational accuracy that Renaissance painters were able to imbue their saintly figures with the feeling of transcendent holiness? Even though figurative accuracy alone was not enough to produce the meaning we take these paintings to hold, we must concede that that accuracy was the means by which such significance could be relayed to its viewer. Similarly, the advancements of the traditional cinema cannot be separated from the progress of its representational mechanisms. The artistic advancements in Orson Welles' films *Citizen Kane* and *The Magnificent Ambersons* of what Bazin calls "in depth" shots, which allowed Welles to keep the action of an entire scene within one shot and thereby produce a particular sort of theatrical aesthetic meaning, was the product of a technical advancement in the quality of lens optics and film emulsion.

In terms of its procedure, the innovation of the photo-icon cannot be seen as a re-creative act. While both the traditional cinema and the digital cinema have the affect of transcending material reality in mimetic terms, the digital cinema differs from the traditional in that it transcends a reality from which it has no necessary origin. Therefore, the transition from photographic to photo-iconic imagery suggests the necessity of a paradigm shift in the central notion of cinema's practical capabilities. It moves the medium from the quest of the total cinema to that of total reality. The latter pursuit, when applied to Arthur Danto's model of historical trajectory as put forth in *Modernism and the Critique of Pure Art: The Historical Vision of Clement Greenberg*, strives for increasingly adequate philosophical representations of the nature of art.

In *Modernism and the Critique of Pure Art*, Danto refers to a quote from the introduction to Martin Heidegger's text, *Being and Time*. Heidegger claims that, "The level which a science has reached is determined by how far it is *capable* of a crisis in its basic concepts."[xlvii] The very fact that the practical collapse of photography into photo-iconography is possible should be sufficient evidence to support the notion that the cinematic medium holds ample capacity for the crisis of its concepts. The success of many products of the cinema shows that we should not be inclined to negate the import of film in its traditional model as an art based in material root. We should, instead, be inspired by the limitations of cinema and see a positive shift of the medium's semiological structure in the capabilities of the photo-icon.

The "philosophical representation of the nature of art" of which Danto is speaking refers to the modern realization, heralded by Kant, that, "reality has no meaning, but art does."[xlviii] The traditional cinema took the first step in fulfilling this statement when the

discourse shifted from mere occupation with reproduced motion found in the films of Lumière to the early narrative forms of filmmakers such as D. W. Griffith. From this point, the cinema began to develop as a language by establishing the basic devices of editing. The first form of editing or montage is what Bazin calls 'invisible editing.' He says, "Scenes were broken down just for one purpose, namely, to analyze an episode according to the material or dramatic logic of the scene."[xlix] In Griffith's cinema, the basic principles of the transfiguration Bazin describes were starting to take shape. Bazin continues, "It is this logic which conceals the fact of the analysis, the mind of the spectator quite naturally accepting the viewpoints of the director which are justified by the geography of the action or the shifting emphasis of dramatic interest."[l] Montage synthesizes the viewer's movement through a narrative space so that, for instance, the transition from a shot of a frightened patron to a close-up of a gun to a wide shot of a robber taking control of a bank grammatically establishes the dramatic feel of the narrative space in a way quite distinct from the theatrical presentation of such an event.

Later, in the post-Bazinian era of cinema, these grammatical structures of juxtaposition in montage and composition would become the subject of a self-conscious practice in the films of Jean-Luc Godard, Alain Resnais and Michelangelo Antonioni, to name a few. The work of these artists shows their comprehension of the notion that reality itself is without meaning. Resnais' *Hiroshima Mon Amour*, for instance, deals with the characters' attempts to piece together the moral truths of their relationship and environment amidst the vague and subjective nature of their memories, which make the grounding of those truths impossible. In this film, where neither the characters, the filmmaker nor the viewer can settle upon the implications of an immensely powerful

cultural moment on the lives of two star-crossed lovers, the truth of Danto's statement, "At the most one can say that reality defines a limit art can be said to approach – but which it cannot reach on penalty of no longer being art," is made clear.[li] Never before it has a medium come closer to the limit of reality than has the cinema. Yet, drawing upon Bazin's illusion to the myth of Icarus, the viewer is burdened by the fact that even if he, like Icarus, could reach his destination, he would find nothing hospitable to his comprehension. The sun, it seems, is composed of hot gas, which holds no explanation of why it gives life.

Pasolini believes that the cinema, based in the concrete nature of its images, is well suited to mimicking the language our minds readily assume in dreams. But upon further inspection, we may see that the traditional cinema falls short of its companion in this comparison. Pasolini says in *The Cinema of Poetry* that,

> Images are always concrete (only by a foresight embracing millennia could one conceive image-symbols which would know an evolution similar to that of words – or at least roots, originally concrete, which, with use, have become abstract.) This is why cinema is, today, an artistic and not philosophical language. It can be a parable, but never a directly conceptual expression.[lii]

Yet, it may be argued that dreams and memories do carry conceptual expressions with their images. One example may be found in Freud's theory of dream logic. In dreams, Freud says, multiple people or objects are often amalgamated into a single entity by a phenomenon he calls *condensation*. By combining the likeness of a family member with that of some historical figure, the dreamer can produce exactly the sort of conceptual expression present in symbolic language – that is, metaphoric language. Condensation allows for the idea not only that a loved one is *like* George Washington, but also that they

are the same person. We must certainly agree that the likeness or the equality of distinct entities are indeed quite different from one another.

Pasolini claims that the traditional cinema is naturally prone to the production of metaphors. He says, "Its expressive force, its power to embody the dream, that is its essentially metaphoric character."[liii] His mistake in ascribing the possibilities of representation in dreams to the powers of the traditional cinema comes from his improper use of 'metaphor.' The cinema's character is actually more in line with the production of analogies than metaphors. In order for the cinema to produce a similar meaning to Freud's notion of condensation in dreams, it must juxtapose the image of a family member *against* an image of an historical figure. This process keeps the two entities conceptually separate; in traditional montage they are associated only by analogy – the family member is like George Washington. The limitation found here does not hold true for the properties of the photo-icon. A new form of juxtaposition is possible for the digital cinema – what we will call *transcendental montage*. This form of montage allows not only for the juxtaposition of images against one another, but also *within* each other. Through its process of transcendental montage, the photo-icon may create exactly the same phenomenon as occurs in dream condensation. It may produce true metaphors – the equation of two people as the same entity.

As we saw in an earlier portion of this text, Pasolini's claim that the image-signs of the indexical cinema cannot refer to anything less specific than a particular object is not similarly true for the properties of the photo-icon. The photo-icon may not only abstract away from the representation of a particular object, it may also combine the appearances of many distinct objects to produce a form much like the objects of dream

condensation. This capacity illuminates the meaning of transcendental montage. Traditional montage is the juxtaposition of objects held in discreet frames A and B. Transcendental montage is the synthesis of these two discreet objects into a single form, presented in frame C. This linguistic mechanism allows for the creation of a directly conceptual expression in the production of a synthetic form, thereby defying the limitation of indexical specificity and giving the cinema a new mimetic order.

Returning to the discussion of Aristotle's *Poetics*, it appears that the digital cinema's capacity for transcendental montage requires a reevaluation of the notion of creative mimesis. Aristotle showed that mimesis was not limited to the mere recreation or imitation of the natural world. Rather, 'types' or 'kinds' could be produced by the mimetic arts to represent conceptual beings such as heroes and villains. In Aristotle's model of mimesis, the poet could generate a character whose properties were limited only to the succinct features that its creator desired. Yet, there is a certain intrinsic property of both the theatre and the indexical cinema that limits what the creation of a type may mean. When the poet, playwright or screenwriter produces a narrative work, the characters as they exist in words can be universal and succinct. But the performance of a narrative piece requires actors to embody the types of its characters. In this way, an aspect of the character's universality is lost. In a sense, the performance of a mimetic work brings it back to the Platonic mimesis of recreation as the actor imitates something he is not.

The countless magazines and television shows about the lives of actors makes it impossible for us to separate a character from the particularity of the description of the actual person – a person whose life we know all too well. When we see an actor portray

a mythic figure in the traditional cinema, we cannot entirely separate the actor's image from the context of his celebrity. This limitation of creative mimesis is wholly disrupted by the advent of the photo-icon. Several actors can be digitally amalgamated to produce the image of a human hybrid, a type. We may take the most heroic eyes from one actor and the mouth from another to make the perfect superhero. Furthermore, this advancement is not limited to the combination of multiple actors. Even for the performance of a single actor, the material of their image may be shaped to falsify their appearance and even gestures to put the actor's presence in greater accordance with that of a character.

The mimesis of the photo-icon, therefore, is quite different from that pertaining to the theatre and the traditional cinema. It is in both its procedure and its affect a creative act and not a re-creative one. With the advent of the photo-icon's total reality comes a form of total mimesis. Mimetic works in this medium allow the artist the freedom to include only the features of the represented objects that he wishes. So, to see the digital cinema's diversion from the traditional cinema more clearly, we may realize that it is not a really a diversion at all, but rather a complete reversal of means, one which may or may not lead to the same ends as its predecessor.

The traditional cinema begins from the real, its indexical recording of nature, and then transfigures that material through the artist's composition and montage. The digital cinema, on the other hand, begins from a process of transfiguration, or more precisely from pure creation with respect to the a priori structures of the artist's mind, and then applies its invention to the real by mimicking the appearance of the natural. This process, far more than is true of the traditional cinema, is in direct correspondence with the

Kantian model of human perception. In Kant's theory, the human mind synthesizes the real from the combination of sensory experience and a priori structures and then seeks to apply these contrivances outward onto objects. The photo-icon is a semiological revolution in the realization of this notion's application to the practice of art. If it is true that reality is without meaning but art is not, then we must ask what new forms of meaning the photo-icon will confer upon reality. This matter is wholly dependant upon the artists and audiences of the next generation of the cinema. The substance of this limitless form will be governed only by what is made of it and in turn how its applications are accepted by our culture. Will the field of documentary make room for the photo-iconic image that represents a true phenomenon of nature that cannot be otherwise represented in picture? Will narrative cinema shift from the doctrine of the real? We cannot yet know. If reality is truly without meaning, then the limits of the photo-icon's total reality are only what we choose to accept and so the answers to these questions wait in the wings of our culture.

[i] André Bazin, "Ontology of the Photographic Image," trans. Hugh Gray, What is Cinema? (Berkeley: University of California P, 1967) 13.
[ii] Ibid.
[iii] Ibid.
[iv] André Bazin, "The Virtues and Limitations of Montage," trans. Hugh Gray, What is Cinema? (Berkeley: University of California P, 1967) 48.
[v] Bazin, "Ontology" 15.
[vi] Immanuel Kant, Critique of Pure Reason, trans. Norman K. Smith (New York: Palgrave Macmillan, 2003) B1.
[vii] Kant, Pure Reason Bxvi.
[viii] Ibid, B34.
[ix] Bazin, "Ontology" 14.
[x] Erwin Panofsky as quoted in Stanley Cavell, The World Viewed: Reflections on the Ontology of Film (Cambridge: Harvard U P, 1971) 38.
[xi] John Pruitt, "Silence and Cunning: The Case of Peter Kubelka's Archaic Modernism," Bard College Journal of the Moving Image (Spring 2005): 59.
[xii] Bazin, "Ontology" 14.
[xiii] Charles S. Peirce, "Logic as Semiotic: The Theory of Signs," The Philosophy of Peirce, ed. Justus Buchler (New York: Dover, 1940) 107.
[xiv] Ibid, 106.
[xv] Ibid, 110.
[xvi] Ibid, 102.
[xvii] Ibid.
[xviii] Kant, Pure Reason Avii.
[xix] Peirce, 98.
[xx] Immanuel Kant, Critique of Judgment, trans. J. H. Bernard (New York: Hafner P, 1951) 154.
[xxi] Ibid, 154.
[xxii] Panofsky, 38.
[xxiii] André Bazin, "The Myth of Total Cinema," trans. Hugh Gray, What is Cinema? (Berkeley: University of California P, 1967) 18.
[xxiv] Ibid, 19.
[xxv] Ibid.
[xxvi] Kant, Pure Reason Bxx.
[xxvii] Bazin, "Myth" 21.
[xxviii] Peirce, 107.
[xxix] Bazin, "Myth" 21.
[xxx] Kant, Judgment 82.
[xxxi] Ibid.
[xxxii] Ibid, 84.
[xxxiii] Plato, "The Quarrel between Philosophy and Poetry: From *The Republic, Book X*," Aesthetics: A Critical Anthology, ed. George Dickie, Richard Sclafani and Ronald Roblin (Boston: Bedford/St. Martin's, 1989) 23.
[xxxiv] Ibid, 24.

[xxxv] Ibid, 23.
[xxxvi] Friedrich Nietzsche, "On Truth and Lie in an Extra-Moral Sense," trans. Walter Kaufmann, The Portable Nietzsche (New York: Viking P, 1954) 46.
[xxxvii] Jean Baudrillard, "Precession of Simulacra," Simulations (New York: Semiotexte, 1983) 2.
[xxxviii] André Bazin, "Evolution of the Language of Cinema," trans. Hugh Gray, What is Cinema? (Berkeley: University of California P, 1967) 23.
[xxxix] Bazin, "Evolution" 28.
[xl] <http://www.flatrock.org.nz/topics/odds_and_oddities/ultimate_in_unfair.htm>
[xli] John Dickerson, "The RNC's Fraudulent New Ad," Slate <http://www.slate.com/id/2132087>
[xlii] Stephen Halliwell, The Aesthetics of Mimesis: Ancient Texts and Modern Problems (Princeton: Princeton U P, 2002) 350.
[xliii] Paul Woodruff, "Aristotle on Mimesis," Essays on Aristotle's Poetics ed. Amélie Oksenberg Rorty (Princeton: Princeton U P, 1992) 77.
[xliv] Aristotle, The Poetics, trans. Stephen Halliwell (Chapel Hill: University of North Carolina P, 1987) 32.
[xlv] Aristotle, 41.
[xlvi] Bazin, "Montage" 48.
[xlvii] Martin Heidegger as quoted in Arthur Danto, After the End of Art: Contemporary Art and the Pale of History (Princeton: Princeton U P, 1997) 66.
[xlviii] Arthur Danto, "Modernism and Critique of Pure Art: The Historical Vision of Clement Greenberg," After the End of Art: Contemporary Art and the Pale of History (Princeton: Princeton U P, 1997) 71.
[xlix] Bazin, "Evolution" 24.
[l] Ibid.
[li] Danto, 71.
[lii] Pier Paolo Pasolini, "The Cinema of Poetry," Movies and Methods: Volume I (Berkeley: University of California P, 1976) 547.
[liii] Ibid.

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