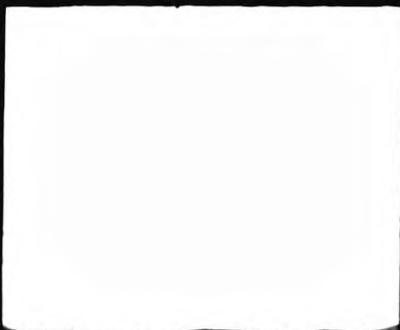


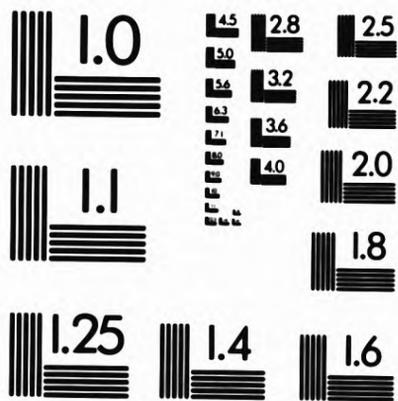
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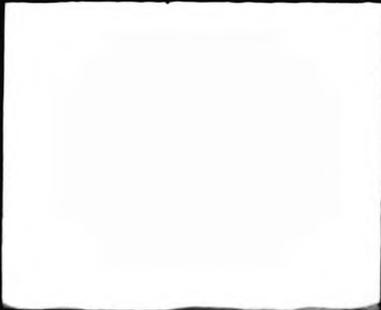
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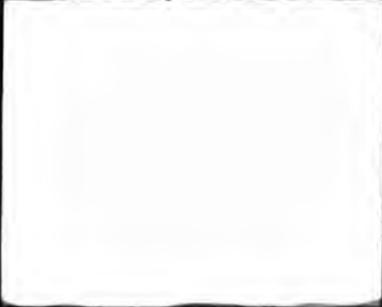
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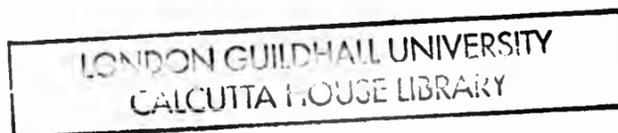
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Montage - Transformation - Allegory

A Study of Digital Imaging in Dialectical Film Making

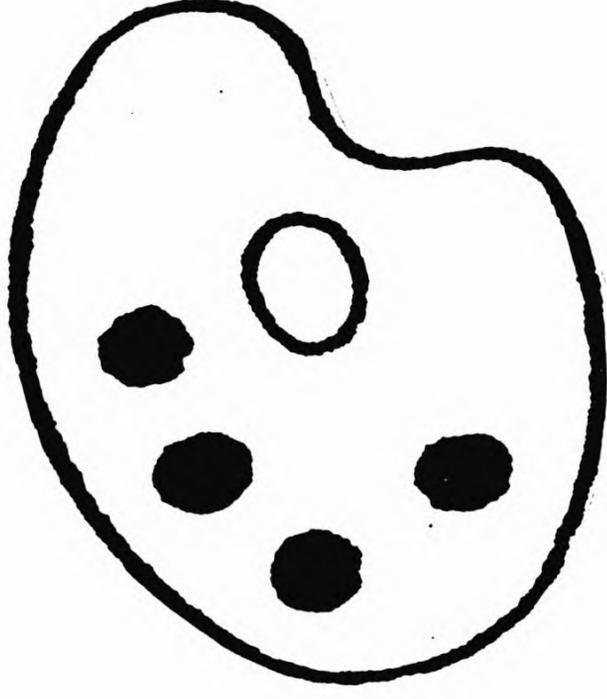


Richard Wright

**Thesis submitted in partial fulfilment of the requirements of London Guildhall
University for the degree of Doctor of Philosophy**

November 1998

NUMEROUS ORIGINALS IN COLOUR



Montage - Transformation - Allegory
A Study of Digital Imaging in Dialectical Film Making

Richard Wright, November 1998
London Guildhall University

Abstract

The thesis is an attempt to show practically and theoretically how digital image synthesis can be used to help create new ways of making meaning by examining some of the methods that lie at the heart of materialist avant-garde arts practice. In the first instance this involves the technique of montage, especially dialectical montage as developed by Eisenstein, Brecht and Godard in which the shock effect is used to overcome conditioned perceptions and create a critical distance. Secondly it is informed by Benjamin's concept of allegory, a method of using montage to assemble historical fragments or emblems to reveal insights into the world of material social relations. The aim of my thesis is to show that transformation rather than montage has now become the primary aesthetic means in digital media and stands with montage in a new perceptual dialectic of shock and fascination.

The main practical component of this thesis submission consists of the film *LMX Spiral*, a digital film making project based on aspects of British social and cultural history from the eighties to the nineties. The film is used as the main means to illustrate various points about the relation between montage and transformation in the context of allegorical film making. *LMX Spiral* can be described as both a historical thesis and a dialectical special effects film based on the attempts during the eighties to create an economic utopia of enterprise and opportunity, undermined by the likelihood of human corruption and natural catastrophe. It is an allegory about Britain's transition between the enterprise culture of the eighties and the lottery culture of the nineties.

The final chapter attempts to expand the application of Benjamin's concept of allegory as a cultural form to the level of the technical production of digital media. The necessity for software systems to perform efficiently under a number of different requirements leads to a hybridisation of knowledge bases and a fragmentation of theoretical models that might be similar to the emblematisation and montage of cultural icons. This suggests the possibility that scientific and mathematical models could be used allegorically on a variety of different levels but also points to certain limits in the applicability of this concept of allegory.

Montage - Transformation - Allegory
A Study of Digital Imaging in Dialectical Film Making

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Introduction

This thesis is an attempt to show practically and theoretically how digital image synthesis can be used to help create new ways of making meaning by using and extending some of the methods that lie at the heart of materialist avant-garde arts. On the small scale this involves addressing the techniques of montage, especially dialectical montage as developed by Eisenstein, Brecht, Benjamin and Godard. On the larger scale it is informed by Benjamin's concept of allegory - a method of using the techniques principally of montage to assemble fragments or emblems to explicate the world of material social relations especially in a historical context to form the "ur-history" of mass culture.

For Walter Benjamin the allegorical form has epistemological and pedagogical functions as well as being an aesthetic programme. It reveals things about our material world that had previously remained hidden, similar to the way Marx had justified his critical method as a science because of its aim to uncover the reasons behind the conditions of the social world that we take for granted [Geras ¹], that they are in fact socially and historically determined and as such amenable to change. Benjamin believed that by becoming "sensitive to the expressive power of matter" the objects that constituted the material world could be rearranged out of their conventional, found or "natural" order so that the forces which shaped them would become visible, manifest and accessible to the senses.

Benjamin, like Eisenstein, believed that montage was the central tool in this process, because it worked by "ripping" objects out of their historical and syntactic continuity, forcing them into the violent collisions necessary to shock people out of their preconceptions and habitual way of accepting the world. At first, it seems that all the styles of digital imaging we have become used to are opposed to this method of the dialectic, of understanding through conflict and jolted perception. Smooth, seamless transitions reinforce continuity and make impossible events appear natural and utterly convincing. Although the digitalisation, sampling and reassembling of cultural detritus is a common strategy, the fragments are put together again through applications like Photoshop that seem designed to blend together all the individual parts back into one unified whole. I want to show that the ability of digital imaging to construct sophisticated transformations between elements can lead to an amplification of the dialectical method rather than its negation, and further that the "realism" of digital media is perceptually very volatile through its different and possibly conflicting levels of significance and visual dynamics.

¹ Norman Geras, "Marx and the Critique of Political Economy". In: *Ideology in Social Science: readings in critical social theory*, (ed. by Robin Blackburn). Fontana, London, 1972. pp 285 - 305.

Digital imaging also allows us to extend the domain of allegory through its ability to recreate or simulate other cultural forms, styles and genres as well as by directly sampling them. The "technical" quality of electronic media has distinct repercussions for producers and consumers – increasing dependence on technical knowledge can lead to social and cultural overspecialisation and fragmentation or it can stimulate analysis and integrate different levels of knowledge and counteract the "shrinkage of experience" [as cited in Bürger ²]. The availability of non-linear and interactive media mirrors at the level of consumption the powers of analysis possible at the level of production through new modes of engagement like navigation and controlling the flow of events. Not only can the digital arts recalculate, reproduce and replicate the cultural world, they also have access to and use the rational level of perceiving and organising this world. Access to scientific and technical knowledge necessarily introduces new levels of discourse and opportunities for dialogue to cultural practice. But the function of scientific knowledge is also altered by its appropriation by digital media, and through this has the potential to expose through its "discontinuities" some of our preconceptions about that model of understanding the material world. The scientific component suggests new ways of reintroducing substance and objectivity into a practice that seems most distinctive for its increasingly fetishised styles of image generation driven by conflating myths of commercial and technological progress.

Finally, the ambitions of Benjamin's theories towards an artistic practice that provides an objective account of the world must be addressed. Not just by limiting artistic practice to the documentary recording or assemblage of social historical artefacts, but which includes an aesthetic method as outlined in the concept of allegory, especially as implemented in the *Arcades Project* [described in Buck-Morss ³]. The methods of digital synthesis do indeed lend themselves to rhetoric, to the careful construction of a thesis in visual or sensual terms, perhaps by manipulating the signifying functions of cultural artefacts restructured into associative, evocative or "dialectical" relations, or perhaps by making algorithmic logical procedures analogous to conceptual logical ones.

The practical component of this thesis submission mainly consists of the film *LMX Spiral*, being the source and result of these ideas expressed in a digital film making project based on aspects of social and cultural history from the eighties to the nineties. *LMX Spiral* can be described as a historical thesis or as a dialectical special effects film based on the attempts during the eighties to create an economic utopia of enterprise and opportunity, undermined by impending human

² Peter Bürger, *Theory of the Avant-Garde*, Manchester University Press, Manchester, 1984 (1974). p 33.

corruption and natural catastrophe. It is an allegory about Britain's transition between the enterprise culture of the eighties and the lottery culture of the nineties.

Although it is the intention for this film to provide the main example of the arguments presented in this written thesis the relation between the theory and practice of this research is not direct or causal. The film will be used extensively in *Part 2* to discuss issues in the relation between montage and transformation and between allegory and dialectics for instance, but a piece of work can never be entirely motivated by the desire to prove certain theoretical notions. And as such it can never entirely remain within the limits of the theoretical project either. This means that the work of theory and the work of practice are separate and follow their own logic but can also be connected at various points. They both intersect and diverge. Benjamin states that history decomposes into images, not narratives [Buck-Morss ³]. Although *LMX Spiral* is described as a historical allegory in Benjamin's sense, there is a clear narrative current running through it, most obviously indicated by the central character who appears in almost every scene. But notwithstanding this, *LMX Spiral* still functions as a valid example of the ideas that I describe here – it is not necessary for it to have an exclusive reliance on just one theoretical or aesthetic programme, nor even to avoid contradiction. There are enough contradictory movements within the programmes of montage, dialectics and allegory anyway.

There can never, *should* never, be more than an flexible relationship between theory and practice, otherwise each would be unable to freely develop without trying to drag the other kicking and screaming along with it. Theory and practice each have motivations and sources of inspiration which are peculiar to themselves as well as common points at which they each inform the other. They are most useful to each other when they are free to pursue these energies and then able to bring to each other the unique perspective which they have gained. In this way they avoid insularity and remain challenging and relevant to each rather than the one becoming subsumed by the other.

³ Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991.

⁴ *ibid*, p 220.

Part 1

Nature, History and Dialectics in the Avant-garde



Pablo Picasso, *Still Life with Chair Caning*, oil paint and collage, 1911-12.

Collage - Montage - Collision

Montage first appears in the history of modern art in the guise of collage. In 1912 Pablo Picasso stuck a piece of oilcloth with a chair caning design directly onto a painting and then continued to work over it. After it was finished he surrounded the oval picture with a piece of rope instead of a wooden frame. This *Still Life with Chair Caning* marked the end of "analytical" cubism and the ascent of "synthetic" cubism. After years in which Picasso and Braque had worked together to break down the traditional artistic subjects of still life, portrait and landscape into individual monochrome pictorial elements, graphics, words and spatial structures, the time had come to reintroduce the "real world" back into painting, to recreate the tension between what is real and what is illusory, between what is given and what is constructed. At the same time Picasso also began to translate his cubist paintings into the physical world of sculpture, remaking the musical instruments and domestic items that formed his usual subject matter by assembling constructions of sheet metal, wire, wood and paper.

As Robert Rosenblum discusses in his history of Cubism [Rosenblum ⁵], Picaso's first experiment with collage does not simply add a conventional still life object to a still life painting, such as sticking a wine glass onto a picture of a dining table. He chose a fragment of oilcloth on which there was already printed the pattern of chair caning. Later both Picaso and Braque would include industrially reproduced imagery like newspapers, tickets and printed fabrics and papers in their collages. Rosenblum goes on to argue that these wallpaper patterns and facsimile wood grain finishes instead of merely extending the range of aesthetic materials available complete the "destruction of the traditional mimetic relationship between art and reality...by the very choice of a material that in itself offers a deception" [Rosenblum ⁶]. In montage terms we could say that whereas analytical Cubism fragments the aesthetic unity of pictorial space, synthetic Cubism fragments the representational relationship itself. There is no stable single referent for such an image, at least not in the new world of industrially manufactured artefacts.

For Rosenblum, a dialogue is brought into play between the two dimensional artistic space of pictorial elements and two dimensional collaged materials from the non-artistic external world. This results in the development of a catalogue of techniques in which Cubism counters the traditional principles of Western illusionistic painting. But in fact Rosenblum tends to restrict his discussion to the interior world of aesthetic devices, in which the progress of Cubism from analytic to synthetic follows a general logic in which modern art concentrates more on its own autonomous pictorial properties that are "far less dependent upon the data of perception" [Rosenblum ⁷]. The pasted strips of collaged paper actually help to flatten out the space of the painting and further remove it from the three dimensional world (and perhaps, by implication, from the whole of external reality). These elements only introduce semiotic ambiguities and games into the pictorial space itself while leaving our understanding of the outside world of material reality relatively unaffected. Collage is part of the "means for measuring the distance traversed between the stimulus in reality and its pictorial re-creation" [Rosenblum ⁸]. Indeed, the future direction of Cubism after 1914 begins to increasingly include symbolic references, personal iconography and decorative effects, to the extent that in some paintings the earlier collaged wood grain finishes and newspapers are imitated by hand in paint (most famously the newsprint effects in *Guernica* in 1937). Rosenblum only barely suggests that the artifice of these paintings through collage could be directly re-engaging the external world by reflecting and incorporating the artifice that is part of the modern world of industrially manufactured objects.

⁵ Robert Rosenblum *Cubism and Twentieth Century Art*, Abrams, New York, 1959.

⁶ *ibid*, p 68.

⁷ *ibid*, p 71.

⁸ *ibid*, p 71.

Peter Bürger uses Cubist collage as the earliest example of a practice of montage that will later become a central technique in the avant-garde "nonorganic" art work [Bürger⁹]. In Cubism the introduction of "reality fragments" is contrasted with the abstract construction by which the different pictorial elements are arranged. Bürger detects a tension between the intent to create a balanced aesthetic composition and the insertion of unmodified reality fragments which threaten to disrupt the unity of the whole painting. The Cubists contradict the traditional principle of representation that the artist must transpose reality in order to portray it and must therefore deliberately fashion all of its parts to achieve a unified subjective expression. But although these "reality fragments" remain relatively unaltered and distinct the Cubists have clear compositional intentions when they incorporate them into a painting due to the fact that they "stop short of a total shaping of the pictorial space as a continuum" [Bürger¹⁰].



Jean Arp, *Squares arranged according to the laws of chance*, collage, 1916-17.

In the emerging world of the avant-garde during the First World War, it was left to other artists to make more radical extensions to collage. The Dadaists first ruptured the aesthetic programme of Cubist collage through the free form assemblages of Jean Arp "arranged according to the laws of chance". The poet Tristan Tzara created poems from words cut out of newspapers and scattered on a table. The intentions of Dada were anarchistic - they blamed the destruction of the First World War on the traditional aims of enlightenment reason and logic and the suppression of the

⁹ Peter Bürger, *Theory of the Avant-Garde*. p 73.

irrational [Richter ¹¹]. Their reaction towards all forms of order was negative and destructive. The act of cutting up involved in collage was for them far more important than artfully putting them back together again. One thing worth mentioning here is that Arp's interest in chance and the spontaneous lead him to the conclusion that it gave him a way of directly accessing natural forces and therefore of expressing reality in direct concrete terms free of human intervention. Some threads of these ideas would eventually find their way through Constructivism to early experiments in Computer Art.

By the end of the First World War the centre of Dadaist activity had moved to Berlin. It was here that both Raoul Hausmann and George Grosz claimed to have invented photomontage - the practice of cutting up and pasting together photographs of people, events and typography in order to achieve shocking juxtapositions. Unlike Cubism, for these Dadaists subject matter was crucial in their aim to directly confront social and political ideologies. In a modern world in which the forms of mass media were central to social and political debate, cohesion and consensus, it made perfect sense for an oppositional artist to use montage to destroy these images and then recreate them in contradiction to their original purposes. The most famous exponent of Berlin photomontage became John Heartfield, who in turn became one of the central references for Walter Benjamin's thinking.



D W Griffith, *Intolerance*, film, 1916.

Griffith cuts between racing Babylonian chariots and a speeding train.

The world of mass media itself produced cultural forms that had an impact on the further development of the technique of montage. D W Griffith helped develop and popularise a method of narratively motivated editing sometimes called "parallel montage" during the 1910s [Bordwell

¹⁰ *ibid*, p 78.

¹¹ Hans Richter, *Dada: Art and Anti-Art*, Thames and Hudson, Cologne, 1964. p 51.

and Thompson ¹²). By the time he made *Birth of a Nation* (1915) and *Intolerance* (1916) he had become well known for the practice of cross cutting between different sets or locations. These were often employed in last minute rescue scenes in which he would rapidly edit between the victim and their rescuers. He also introduced more close up shots in order to make a more central use of subtleties of facial expression, and editing between long and close up shots. American films circulated widely in Soviet Russia to fill the void left by the low output of its own film industry after 1918. In his essay *The Montage of Film Attractions* Sergei Eisenstein points out another effect of Griffith's montage style [Eisenstein ¹³]. In one scene in *Intolerance* the chief bandit is introduced by beginning with a shot of the inside of his bedchamber which is covered in pictures of naked women. A sudden cut to the figure of the bandit entering produced a perceptual jolt which Eisenstein incorporated into his own ideas of montage based film making.

In Soviet Russia a national cinema movement began to develop in the 1920s [Bordwell and Thompson ¹⁴]. Lev Kuleshov at the State School of Cinema Art began to systematise the principles of continuity editing practiced by Hollywood film makers by writing theoretical essays. None of the important new directors of the new montage style - Dziga Vertov, Pudovkin, Eisenstein - had backgrounds in pre-revolutionary film making. Vertov concentrated on documentary film recording, but used daring montage effects in order to suggest associations between factory workers, machines and the process of film making itself. He believed that reality should be manipulated directly through documentary in order to apprehend it. Pudovkin and Eisenstein both made montage based narrative films but their understanding of the montage effect developed in quite different directions.

For Pudovkin, montage was a way of assembling shots by linkage, like bricks in a wall. Pudovkin often followed the cross cutting style of Griffith to create parallels between two different events. In the courtroom scene in *The Mother* (1926) Pudovkin inter cuts shots of the uncaring judge with the faces of the mother and the other victims of "justice". The judge is portrayed as being vain and more concerned about the appearance of his regalia. But whereas Pudovkin's editing was narratively motivated Eisenstein's was more symbolic. Nelmes argues that Eisenstein would have been more likely to inter cut the judge with a strutting peacock [Nelmes ¹⁵]. Pudovkin's montage was more diegetic, whereas Eisenstein's relied on a "collision" between shots to create

¹² David Bordwell and Kristin Thompson, *Film History: An Introduction*, McGraw-Hill, New York, London, 1994. pp 74-75.

¹³ Sergei Eisenstein "The Montage of Film Attractions" (1924) In : *Eisenstein at Work*, by Jay Leyda and Zino Voynow, Methuen, London, 1985. p 18.

¹⁴ David Bordwell and Kristin Thompson, *Film History: An Introduction*, McGraw-Hill, New York, London, 1994. pp 138-140.

¹⁵ Jill Nelmes, *Introduction to Film Studies*, Routledge, London, 1996. p 349.

the effects he wanted. Eisenstein wrote of their differences that Pudovkin used shots like "...bricks arranged in a series to *expand* an idea...I confronted him with my viewpoint on montage as a *collision*. A view that from the collision of two given factors *arises* a concept" [as quoted in Wollen ¹⁶].

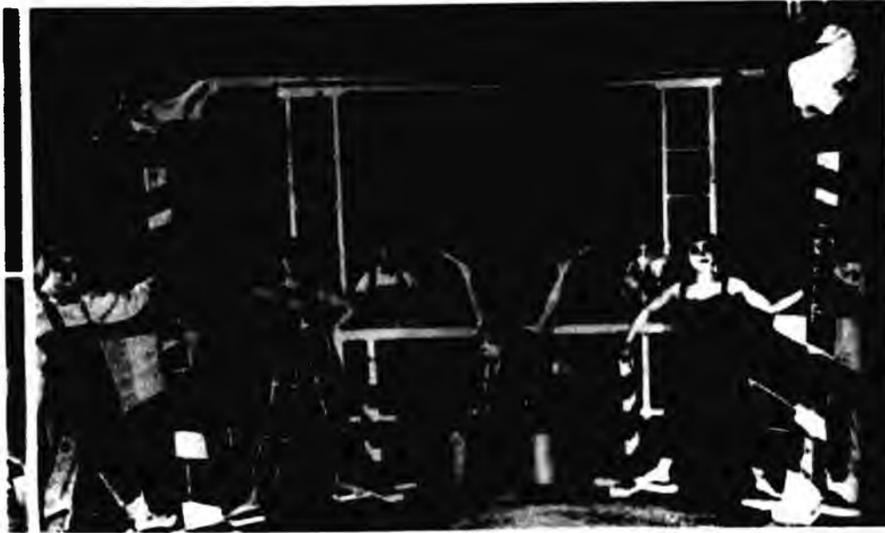
Eisenstein's theory of montage developed through his early work in theatre, incorporating elements of circus and pantomime and then later on Japanese Kabuki theatre. The first production in which Eisenstein clearly demonstrated these new techniques was a version of Ostrovsky's *Enough Simplicity in Every Sage* performed in 1923. Instead of organising the play into conventional acts and scenes it was broken up into a series of spectacles, a "montage of attractions". The stage was set in the ballroom of the ex-Villa Morossovis and laid out in the manner of practically every kind of popular live entertainment imaginable. It was like a gymnasium with tight ropes and vaulting horses, like a music hall, a circus with clowns, with caricatures of political figures lampooned, parodies of religious processions, "noise bands" and fireworks exploding under the spectator's seats [Leyda and Voynow ¹⁷]



Meyerhold, *The Magnanimous Cuckold*, theatre play, 1922.

¹⁶ Peter Wollen "Eisenstein's Aesthetics". In *Signs and Meaning in the Cinema*, Thames and Hudson/BFI, London, 1969. p 48.

¹⁷ Jay Leyda and Zina Voynow, *Eisenstein at Work*. Methuen, London, 1982. p 14.



Sergei Eisenstein, *Enough Simplicity in Every Sage*, theatre play, 1923.

Eisenstein had worked under the theatre director Meyerhold in the new Proletcult revolutionary theatre organisation. Meyerhold had developed an approach to theatre which was directly in opposition to the naturalism and psychologism of men like Stanislavsky, a pre revolutionary director still working at the Moscow Arts Theatre. Stanislavsky insisted on the depiction of worthy social and civic themes in the tradition going back to Tolstoy and in the importance of communicating psychological subjective states through expressive acting. Meyerhold had been deeply influenced by Hoffmann and the *commedia dell'arte*. He was attracted to the elements of the fantastic in popular culture and folk culture like pantomime, and used them to build a non-verbal highly stylised theatre of artifice. To these influences he added those of both Marxist materialism and American mass culture. The actor was redefined as a bio-mechanical body whose training involved a heavy emphasis on sport and physical fitness. Like the biological component of a giant social system, a good actor was regarded as one with "minimum reaction time" so as not to impede their theatrical functions. As well as this, Meyerhold was fascinated by the set pieces of American slapstick film making - its hair raising rooftop chases, comic policemen and aeroplane rescues. Meaning and values were to be demonstrated directly in a physical way, as though the inner workings of the social world could be made manifest in action, social relations expressed in physical interplay [Bordwell ¹⁸].

Eisenstein had previously trained as an engineer (Pudovkin as a chemist) and his interest in scientific units of measurement lead him to first propose the "attraction" as the basic unit of "impression" that is produced by an art form. After the success of *Enough Simplicity in Every*

¹⁸ David Bordwell, *The Cinema of Eisenstein*, Harvard University Press, Cambridge and London, 1993. pp 3 - 5.

Sergei Eisenstein wrote up these ideas in his first important essay *Montage of Attractions* published in the avant-gardist *Lef* magazine in 1923. Eisenstein describes the "attraction" as that which produces a reaction in the audience which can influence their experiences within the total theatrical production. It is like a way of guiding the audience through to the meaning of a play by giving them an occasional prod in the right direction or to make sure they are still paying attention. Eisenstein reminds us that this is not the same as a "trick". "Tricks are accomplished and completed on a plane of pure craftsmanship... inasmuch as it is from the viewpoint of the performer himself, it is absolutely opposite to the attraction - which is based exclusively on the reaction of the audience" [Eisenstein ¹⁹]. The trick is intended to fascinate and impress the audience with the performer, while the attraction stimulates the audience "to make the final ideological conclusion perceptible. The way to knowledge - 'Through the living play of the passions' - applies specifically to the theatre (perceptually)" [Eisenstein ²⁰].

The influence of the behaviourist psychologist Pavlov is clearly indicated here. His experiments in stimulus and response were adopted by Eisenstein to explain the way that events or attractions staged in the theatre could be accurately designed to lead to specific reactions in the audience. In his first film *Strike* made in 1924, this approach led to the film being organised as a series of shocks or provocations which would stimulate the viewer. But what positive result could these "shocks" accomplish in themselves? The answer was partially provided through the strong influence in aesthetic theory at the time by the Russian Formalist literary critics. Formalist theory was initially a reaction against the Symbolist critics who believed that poetry was a way of "thinking in images" (Potebnya as quoted by Shklovsky) [Shklovsky ²¹]. The artist's main task was to find or create images of things which most succinctly expressed their ideas - achieving an "economy of mental effort" which becomes the cause of aesthetic pleasure. In opposition to this, theorists like Victor Shklovsky argued that this only accounted for one use of imagery - its use in practical language, and that the poetic use of imagery had quite a different aim - that of *Ostraneniye*, literally "making strange" or "defamiliarisation" [Shklovsky ²²].

The main argument was that whereas the Symbolists saw poetry as a quest to find new "images" with which to express themselves, the Formalists sought new ways to view the same images differently. By "images" I take this to mean in effect the objects that language refers to, as

¹⁹ Sergei Eisenstein "Montage of Attractions" (1924) In : *Film Form* (ed. and trans. by Jay Leyda), Harvest, London, 1949. p 182.

²⁰ *ibid*, p 181-182.

²¹ Victor Shklovsky, "Art as Technique". In : *Russian Formalist Criticism. Four Essays.* (ed. by L. Lemon and M Reis), University of Nebraska Press, Nebraska, 1965. p 5.

²² *ibid*, p 11.

pictures of the world. Poetry gives us ways of seeing the world differently by presenting it in unfamiliar poetic terms. In *Art as Technique* Shklovsky writes

"If we start to examine the general laws of perception, we see that as perception becomes habitual, it becomes automatic... The purpose of art is to impart the sensation of things as they are perceived and not as they are known. The technique of art is to make objects 'unfamiliar', to make forms difficult, to increase the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged. Art is a way of experiencing the artfulness of an object; the object is not important" [Shklovsky²³].

The object of poetry is not then to lead to more accurate knowledge about an object by perhaps changing one's point of view, because the object is not important. It is more important for poetry to provide an occasion for a sharpening of one's awareness and powers of perception by requiring an extra effort to be made in its reading. This implies, however, that the extra effort does not actually lead to any externally valuable result, the effects of poetry are not "motivated" by the intentions of realism. Shklovsky states that

"an image is not a permanent referent for those mutable complexities of life which are revealed through it; its purpose is not to make us perceive meaning, but to create a special perception of the object - it creates a 'vision' of the object instead of serving as a means for knowing it" [Shklovsky²⁴].

This accurately describes a theory for explaining how to use language to rupture established patterns of perception but does not adequately cover why it might be necessary to do this in the first place. One "vision" is just as good as another "vision". There is also no hint of why one way of perception may have become "habitual" in preference to any other in the first place - it does not even seem to matter. In a way this is one of the classic problems of relativism, its intensely formal level of enquiry excludes questions of social and historical relevance or political intention. In the texts that Shklovsky actually analyses, the question of social or moral critique does arise, but is not addressed by his theory. Shklovsky is very fond of quoting passages from Tolstoy for instance, in which he describes social injustices such as the use of public flogging in an "unfamiliar" way in order to make it less morally acceptable than before. The "vision" it produces is therefore one that is presumably intended to provoke action. It was left to the avant-garde

²³ Ibid, p 12.

²⁴ Ibid, p 18.

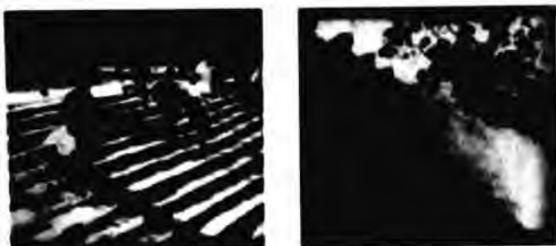
artists of the twenties to development these methods towards the cause of a specifically revolutionary practice.



Sergei Eisenstein, *October*, film, 1928. Kerensky is cut to a shot of Napoleon.



Sergei Eisenstein, *October*, film, 1928. Religious beliefs are critically compared to patriotism.



Sergei Eisenstein, *Battleship Potemkin*, film, 1925. Graphic composition of steps contrasted with rifles.

In *Methods of Montage* published in 1929 Eisenstein detailed his own techniques of presenting the world through cinema in ways that would shock and provoke a change in perception and in ideological outlook as well [Eisenstein ²⁵]. Montage, as we know, is simply the way of editing individual strips of film or shots together to form scenes or sequences. Eisenstein lists a number of increasingly complex ways in which this technical process can be artistically organised. At the most formally materialist level is metric montage. This is the length of shots as they are editing together ordered purely by their patterns of duration. Eisenstein recommends that simple numeric patterns like musical beats be used to control the pacing though this does not need to be recognisable in order for it to achieve a "sensual impression"²⁶. Next is rhythmic montage, in

²⁵ Sergei Eisenstein, "Methods of Montage" (1929) In : *Film Form* (ed. by Jay Leyda), Harvest, London, 1949.

²⁶ At this lower perceptual level is also included montage effects that occur within the frame such as graphic montage. In this case montage refers to any graphic elements that are arranged in opposition, such as the contrast between the lines of the steps and the direction of the pointing rifles in the scene in *Battleship Potemkin*.

which the cutting points are determined by the action which is occurring in the frame. This is the same as "editing on action" or cutting on "eyeline match" where the point of the cut is partly determined by the momentum and significance of the movements of the actors in the shot. It is often used in combination with metric montage to build up to the climax in a scene by increasing the speed of edits for instance. Then we have tonal montage, which controls how the cinematic qualities of the film like lighting change over longer lengths of film time, and overtonal montage which guides the changing moods or atmosphere over the course of the film. As we move up through "higher" levels of montage Eisenstein states that these "constructions" appeal to higher levels of perception. The lower levels like metric montage trigger the "rude motive" centres, and then move up through "primitive emotive", "melodic emotive" and "direct motive". Finally we get to the highest levels of perception where we find "intellectual montage", a level at which perception is most influenced by cultural, social and historical factors including class conflict.

But how are these "montage constructions" to be organised in order to stimulate these higher levels of perception? For the lower levels the principle means are simple structuring patterns that we have already described, but by the time we reach the stage of overtonal montage we have reached a level where the *dialectic* takes over from simpler techniques like contrast and counterpoint. In *A Dialectical Approach to Film Form* also written in 1929 Eisenstein explains how the Marxist concept of dialectical materialism can be applied to film making [Eisenstein ²⁷]. For Eisenstein art, as well as the Marxist material world, is always in conflict and art's task is to "make manifest the contradictions of Being". Conflict in the world and in art takes many forms and it is these unresolvable conflicts that account for the constantly dynamic state of forces that drive change and new ideas.

Eisenstein restates Shklovsky's theory of "making strange" in dialectical terms as the conflict between conditioned and unconditioned reflexes (here Eisenstein has also replaced Shklovsky's discussion of "perception" with the more materialistic Pavlovian "reflex"). A surprising or unfamiliar presentation of images causes a conflict which can only be understood dialectically, thereby creating a new "dialectical" idea. It is through the methods of montage that these images are put into conflict with each other, and through dialectical montage that new concepts arise in the minds of the spectators. Here we are reminded that montage does not necessarily lead to conflict nor to a dialectical relationship. Classic continuity editing is designed to remove conflict through "matching" graphics, action, etc, and the shocks of montaging conflicting images together may lead to "defamiliarisation" but not necessarily to a dialectical new understanding of

²⁷ Sergei Eisenstein, "A Dialectical Approach to Film Form" (1929) In : *Film Form* (ed. by Jay Leyda), Harvest, London, 1949. p 49.

the world [Eisenstein ²⁸]. The dialectical method requires the spectator to actively exercise their perceptual powers to discover an ideological preconception for themselves - "defamiliarisation" becomes release from false consciousness.

But although for Eisenstein dialectical montage will hopefully lead to an intellectual awakening, the means by which this is achieved is not entirely intellectual itself and involves as many levels of perception and emotional response as there are levels of montage. How are they related to each other? And why is it better to let the spectator discover the concept through their own dialectical efforts rather than just telling them what you want them to find out? The fullest answer, which becomes a whole theory of mental processes, is contained in the essay *Film Form : New Problems* of 1934. First Eisenstein criticises the naive aims of intellectual cinema which he had formulated in the twenties, that results "in transmuting to screen form the abstract concept, the course and halt of concepts and ideas - without intermediary. Without recourse to story, or invented plot, in fact directly - by means of the image-composed elements as filmed" [Eisenstein ²⁹]. Eisenstein was describing a film "language" which directly corresponds to the processes of thought, like an algebra, which by following one could arrive at the necessary conclusions.

But the process of film making no matter how logically constructed does not necessarily imply a logical or informative content. Eisenstein stresses the difference between meaning and knowledge with an example taken from physiognomy as developed by Lavater in the nineteenth century. Although physiognomy no longer has any objective scientific basis, it is still used by film makers to create "impressions". When we see a face where the eyes are too close together we know this means this is a person we cannot trust, but we do not make the same logical connection when we meet someone that looks like this in the street. We must not mistake the logic of form for the logic of content. What happens when we take the meaning of a face is that it creates an emotional impression that sets off a different non-logical thought process, that of "sensual thinking".

Eisenstein divides thinking up into an anthropologically earlier "sensual" and "imagistic" stage and a later "logico-informative" stage. Film making creates meaning that works at the sensual thinking level and only then may lead to the higher intellectual level. The particular sensual form of thinking that Eisenstein finds especially useful is *pars pro toto* - the form of thinking in which the part is substituted for the whole, presumably as in montage a series of fragmented shots

²⁸ Ibid, p 49.

²⁹ Sergei Eisenstein, "Film Form : New Problems" (1934) In : *Film Form* (ed. by Jay Leyda), Harvest, London, 1949. p 125.

stand in for a whole event³⁰. Eisenstein gives this example based on the scene in *Battleship Potemkin* when the ship's surgeon's pince-nez is seen hanging from the rigging to indicate that he has been thrown overboard.

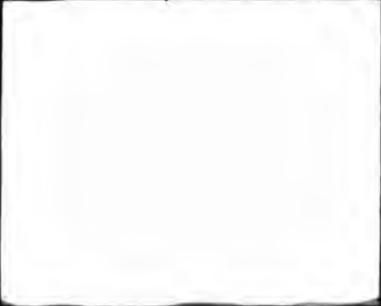
It so happens that this method is the most typical example of a thinking form from the arsenal of early thought processes. At that stage we were still without the unity of the whole and the part as we now understand it. At that stage of non-differentiated thinking the part is at one and the same time also the whole [the bear's tooth signifies the strength of the bear]... We made use of a construction of a sensual thinking type, and as a result, instead of a "logico-informative" effect, we receive from the construction actually an emotional sensual effect. We do not register the fact that the surgeon has drowned, we emotionally react to the fact through a definite compositional presentation of this fact [Eisenstein³¹].

Eisenstein has been criticised for trying to base his ideas about filmic meaning on pseudo-scientific notions and forms of biological determinism [Wollen³²], but elsewhere in the essay he takes great pains to distance himself from an overly "metaphysical" grounding of sensual thinking and gives some indications of a more materialist basis. To start with Eisenstein stresses that contrary to what he implied earlier, sensual and logical thinking do not progress cognitively and in evolutionary development from the former to the later but that the two are always present and in some kind of constantly shifting relation with only temporary points of stability. This is reminiscent of later Lacanian psychoanalytical theories in which the subject is held by a dialectic between "primary" psychic processes characterised by desire and "secondary" processes characterised by logos. Eisenstein's understanding is based instead on anthropological studies of "primitive" peoples culture and behaviour. But just as desire and logos can be defined as trans-subjective, sensual and logical thinking are also deeply affected by social and historical conditions of the subject, principally whether he is living in a progressive socialist state or a regressive fascist one. They have ideological components, though Eisenstein does not say how these components interact.

³⁰ This *pars pro toto* is in contrast to other theories of montage such as Bürger's theory of nonorganic art where the parts exist *instead of the whole* and the emphasis shifts to their principles of construction (Bürger, *Theory of the Avant-Garde*, pp 80-81). This starts to make clearer a certain vagueness in Eisenstein's theory as to the purpose of the dialectical effect. Is it to maintain a creative defamiliarising tension between ideological elements or is it intended to be resolved into a new ideological formation, a new "whole"?

³¹ Eisenstein, "Film Form : New Problems", p 132-133.

³² Wollen, "Eisenstein's Aesthetics". p 69-70



The result of this for the work of art is that of "completely manifold constructions", in which there exists a dialectical tension between the "content" which appeals to the intellectual consciousness and "form" which penetrates into the layers of sensual thinking. Each particular person will have a certain balance of sensual and logical thinking based on their own particular background which will form their own "inner speech". Although the film director and the viewer each have their own inner speech, they both operate according to the same (dialectical) laws and structures and therefore provide a common basis for communication. Specifically symbolic functions also seem to belong to the sensual part of the mind, at least before some logical interpretation or deduction is made from them (remember the surgeon's pince-nez). No mention is made of how any particular subjective experience could affect these mental processes or whether it would just be immediately swallowed up by them.

For Eisenstein reality cannot be described directly, it must be analysed and reconstructed in order to reveal its hidden structure which otherwise remains obscured by ideological preconceptions. But Eisenstein also leaned towards that scientific strain of Marxist materialism which sought to lead its audience towards its own inescapable conclusions about the nature of social reality. The shocks of montage could be designed quite formulaically to induce the right kind of emotional reaction which would lead them inevitably to the correct Marxist interpretation of the world. It would be possible to build a didactic cinema which could accurately dictate the viewer's thinking, while at the same time giving them the impression that they had reached these conclusions themselves. Perhaps Eisenstein would argue that after breaking down the audience's ideological false consciousness through montage effects it would follow naturally with the confidence of a social science that the only truthful perspective left would be a Marxist one, which once again is only a presumption. Like the Socialist Realism that succeeded it, this form of dialectical montage aimed at a predetermined closure of meaning. Ultimately this kind of directed thinking can be seen as antithetical to the spirit of montage itself. If the power of montage is its ability to disrupt accepted patterns of perception and thinking, ideological or otherwise, there is no reason to suppose that any alternative perceptions that it makes possible could take one form or another. To break up the ingrained thought patterns of Imperialist Russia might just as easily result in a social democratic, capitalist or fascist revelation as much as a Marxist materialist one. The fact that for Eisenstein the viewer is not given this new insight on a plate but has to actively synthesise it for themselves in order to resolve the montage effect only makes this didacticism more unlikely. Realistically it would not result in any particular ideologically defined reaction, and indeed an element of the unpredictable would remain one of its enduring strengths - its most creative applications would tend to undermine any narrowly propagandist uses.



Sergei Eisenstein, *Ivan the Terrible*, film, 1944.

This internal conflict in Eisenstein's method can be seen again in his use of "typeage". This is the technique derived from Meyerhold for moving away from a narrative that is motivated by the individual bourgeois "hero" character and towards the representation of larger social forces. Each character represents "the social and personal biography condensed into physical form" - a collective subject. Eisenstein would choose his actors and actresses not by acting ability but by how far their physical characteristics could embody a collective social type - the proletariat, the judge, the lord, the soldier. This generalisation of characters into broad social groups seems to work more to reinforce preconceptions of society rather than the conflicts that could be achieved by introducing more offbeat characters. Here, dialectical conflict is restricted to take place only between the large social forces that are defined by Marxist analysis. Wollen accuses Eisenstein at the end of his essay of - "a purely formal and abstract concept of the Hegelian dialectic, mechanically applied and eventually degenerating into an empty stereotype" [Wollen ³³].

Although it sometimes appeared that Eisenstein was just replacing one ideology with another achieved through ambiguous means, it is significant that by the 1930s in Soviet Russia his methods were becoming increasingly attacked. While shooting *Ivan the Terrible* he was brought personally into conflict with Stalin who was concerned that the film should preserve "historical accuracy". After Socialist Realism became the official aesthetic policy in 1934-5 he was criticised repeatedly for using the montage method to try to break up the real world rather than presenting it naturalistically. As Eisenstein stated, "I am not a realist, I am a materialist" - truth could only be accessed through a thoroughgoing materialist analysis, not a superficial presentation. But Stalinism could not tolerate any method that tried to find a hidden reality, whose main technique was to put into question, to disrupt what was already known. The Communist party had already determined the nature of the world - it was now art's function merely to demonstrate this. Even

³³ *ibid*, p 69-70

Formalists like Shklovsky would now be restricted to analysing the works of naturalistic writers like Tolstoy. Unrepentant avant-gardists like Meyerhold were arrested and finally shot.

Defamiliarisation - Interruption - Signification



Bertolt Brecht, *The Threepenny Opera*, theatre play, 1928.

In the West the aims of dialectical montage were continued by artists such as John Heartfield and Bertolt Brecht. It is probably Brecht's work in particular that most closely follows on from Eisenstein's ambitions for a didactic materialist cultural form. A major reason for their difference is the change in historical circumstances. By the thirties fascism had triumphed in Europe and the thousand year Reich looked like it might become a reality. The socialist experiment in Soviet Russia was threatening to degenerate into totalitarianism and a consolidation of the status quo. The work of artists and thinkers during this period became more critical, polemical and urgent. Brecht's *Epic Theatre* is a theatre of "historical imagination" [Mitchell ³⁴]. It tries to demonstrate that the circumstances of today are due to certain historical conditions in the past and that through an act of imagination we can see that things could have turned out differently. The possibilities of tomorrow depend on the spectator's willingness to take history into their own hands and act now, no matter how slight their effect might be, instead of just waiting for events to

unfold and trusting to fate. It is a programme to induce social and historical responsibility during bad times.

In contrast to Eisenstein's use of typage to create collective subjects, the overarching forces of an inevitable historical process, Brecht uses "thinking men" [Benjamin ³⁶]. These are adaptable heroes who exemplify the principles of montage by constantly changing roles and identities to take advantage of the current situation - as Benjamin describes them, "an empty stage on which the contradictions of our society are acted out" [Benjamin ³⁶]. In his *What is Epic Theatre?* first published in 1939, Benjamin provides a concise summary of all the major tenets of Brechtian aesthetics written partly as a result of their close friendship and indicates their mutual influence during the thirties [Benjamin ³⁷]. Giving a description of the main features of this form Benjamin firstly emphasises the "gestural" quality of the acting that is required. The gesture is "falsifiable only up to point", by which Benjamin seems to mean that a gesture is so "inconspicuous and habitual" that it does not amount to a complete statement that can have a unified or unambiguous meaning. The gesture is also the smallest definable part of an entire action or movement, and these gestural parts are obtained by *interrupting* these actions. It is this central technique of interruption, of "retarding" or "framing" the whole action until it disintegrates into episodes or even "quotations" that turns gestural theatre into epic theatre.

The job of epic theatre, explains Benjamin, is not to develop actions but to represent conditions. This rather vague way of putting it is meant to be taken in terms of the causal perception of events in time rather than perception in space. A scene will be taking place on stage and at a crucial point in the action it is interrupted by something or someone, thereby causing a break in its continuity and allowing the spectator to consider the resultant "conditions". The example that Benjamin likes to use is the family row.

The mother is just about to pick up a pillow to hurl at the daughter, the father is opening a window to call a policeman. At this moment a stranger appears at the door. 'Tableau' as they used to say around 1900. In other words: the stranger is suddenly confronted with certain conditions; rumpled bedclothes, open window, a devastated interior [Benjamin ³⁸].

³⁴ Stanley Mitchell, Introduction to *Understanding Brecht*, Verso, London 1992. p xii.

³⁵ Walter Benjamin, "What is Epic Theatre? [Second Version]" (1939). In : *Understanding Brecht*, (ed. by Stanley Mitchell, trans. by Anna Bostock) Verso, London 1992. p 17.

³⁶ *ibid*, p 17.

³⁷ *ibid*, p 19.

³⁸ *ibid*, p 18.

This method of interruption distances the event from the spectator who is "astonished" at what he or she recognises. This gives them a reason to think. "In one who is astonished, interest is born: interest in its primordial form". This clearly a restatement of Shklovsky's "making strange" as it was used in Eisenstein's montage to jolt the viewer out of their ideological lethargy, and in fact the phrase is explicitly but anonymously quoted by Benjamin [Benjamin ³⁹]. There is also a hint of the idea of sensual thinking as a stimulus to logical thought - the shock of the interruption starts a process which can "transform this primordial interest directly into a technical, expert one". For Benjamin, this process is related to a whole new mode of perception that has been introduced through our exposure to mass media. "Interruption" is the basis by which people watch films and listen to the radio. Films avoid complicated plots so that the audience can come in at any point in the screening, radio programmes have to take account of the fact that people will be flipping between radio stations as they listen - an entirely more materialist explanation than Eisenstein's anthropological excursions. Epic theatre seeks to turn this new mode of perception to its advantage as an aesthetic programme. This distance is also maintained by avoiding the use of hero figures with which the audience might identify and draw them too closely into the internal fictional world. Brecht also extends this idea of *verfremdungseffekte* by trying to use elements of different media in his productions such that one media form interrupts another, for example, by including posters in the set that make some comment on the action or characters.

"...a theatre that does not transmit knowledge but actually engenders it" [Benjamin ⁴⁰]. The stage of the epic theatre is intended to function as an experimental situation in which "it tests conditions on men". This suggests that the results of these tests might not be known in advance and have to be deduced by the audience for themselves. It may also mean that the concrete conditions of society are somehow assembled on stage and then allowed to react together, just as in a science demonstration the scientist mixes the two chemicals together in front of the audience instead of just telling them what will happen. The scientist could tell the audience that the chemicals will explode in theoretical terms but that is entirely a different experience from actually seeing it happen on stage. The scientist knows what the result will be but the students have to see it for themselves. The latter is the didactic position we associated with Eisenstein's determinism. In order to avoid this Brecht would somehow have to retain the sense in which the action on stage explodes into many possible levels of interpretation or in which no one clear interpretation is suggested. Brecht himself hints at this aim when he states, as quoted by Benjamin,

³⁹ *ibid*, p 18.

The simple fact that man can be recognised in a certain way creates a sense of triumph, and the fact, too, that he can never be recognised completely, never once and for all, that he is not so easily exhaustible, that he holds and conceals so many possibilities within himself (hence his capacity for development), is a pleasurable recognition [Benjamin ⁴¹].

Brecht uses recognition as something distinct from empathy, which is the means of the audience's identification with the hero. Recognition only occurs at certain points in the play when the audience grasp some relevance to their own social situation. It is discontinuous, always being relinquished again through the techniques of distance and alienation. This is one of the dialectics of Brechtian theatre that Benjamin lists, the supreme one being that of the dialectic between recognition and education [Benjamin ⁴²]. What the audience recognises and learns is specific to each of them, and what they learn will help them recognise more in the future.

Some film theorists have argued that montage theory as applied to film making concentrates mainly on the relationship of shot to shot and gives little indication as to how best to combine these into a whole movie. "[Eisenstein] devotes considerably less attention to the kinds of artistic unit - greater than the shot, less than the whole film - which these montage associations form or constitute. What sort of unit is the montage combination?" [Henderson ⁴³]. For the Soviet montage film makers, pieces of unedited film are merely mechanical reproductions of surface appearance which do not tell us anything about the reality they refer to. But montage theory, "interruptions" and "making strange" only give us techniques for the manipulation of single filmic events into bursts of meaning. They do not indicate how they can be structured over long periods apart from the simplistic accumulation of successive montage sequences one after the other. The only time when Eisenstein writes about the whole film in an essay, Henderson notes that he discusses it in literary and not cinematic terms [Henderson ⁴⁴]. It may be that to talk of "wholes" contradicts the fragmentary montage principle, although all the films and plays we have referred to have at least a continuous plot line - which is basically a literary structure. Perhaps the montage effect needs some kind of establishing build-up for it to achieve maximum impact, or

⁴⁰ Walter Benjamin, "What is Epic Theatre? [First Version]". In : *Understanding Brecht*, (ed. by Stanley Mitchell, trans. by Anna Bostock) Verso, London 1992. p 12.

⁴¹ Walter Benjamin, "What is Epic Theatre? [First Version]". p 13.

⁴² Walter Benjamin, "Studies for a Theory of Epic Theatre". In : *Understanding Brecht*, (ed. by Stanley Mitchell, trans. by Anna Bostock) Verso, London 1992. p 25.

⁴³ Brian Henderson, "Two Types of Film Theory". In : *Movies and Methods, Vol 1* (ed. by Bill Nichols). Berkley, London, University of California Press, 1985.

⁴⁴ *ibid.*

perhaps the individual montage effects need to be related to each other in larger organising units on the basis of some property.

Walter Benjamin believed that the new technique of montage could form the basis of not only an aesthetic but a whole philosophical programme. Montage disrupted the apparent continuity of history by ripping objects out of context and placing them next to each other to reveal or construct (we will not question which here) relationships that were outside those conventionally accepted. The cultural form in which these objects could be reassembled was the allegory, a form which Benjamin traced back through history to the dramatists of the German Baroque.

The sixteenth and seventeenth centuries were times of great turbulence and violent upheaval across Northern Europe. The attentions of the Baroque poets of the period were turned away from the imagined splendour of the heavens and towards contemplation of the material world. In his *Origins of German Tragic Drama (Ursprung des deutschen Trauerspiel)* Benjamin characterises this change in outlook as motivated by a sudden awareness of the destruction that was going on around them and the impermanence of things in the world [Benjamin ⁴⁵]. This shifted the philosophical emphasis from the unchanging eternal essence of things to their fleeting transitory nature. The world was broken up into individual fragments - the more closely the material world was studied the more it disintegrated. These fragments found their aesthetic function as emblems - pictures of objects often combined with a motto. These were to be assembled together in the allegorical "setting".

Benjamin gives a long introduction in which he talks about how his understanding of Baroque allegory or *Trauerspiel* becomes the basis of a whole way of studying and thinking about the world. He distinguishes between truth and knowledge - knowledge is possessed in the concept, but truth can only be represented in ideas [Benjamin ⁴⁶]. "Ideas are to objects as constellations are to stars" [Benjamin ⁴⁷]. What Benjamin seems to be getting at here is that the allegory is like an "idea" in which all the myriad and perhaps contradictory parts of a phenomenon are held together without compromising their independence. "Idea is the representation of the context within which the unique and extreme stands alongside its counterpart" [Benjamin ⁴⁸]. The correct approach to the world of ideas is not to possess it with intention or reduce it to a unified system of concepts but "immersion and absorption" in it as a representation. Allegory is itself an idea

⁴⁵ Walter Benjamin, *Origins of German Tragic Drama* (1928), (Intro by George Steiner, trans. by John Osbourne), Verso, 1996.

⁴⁶ *ibid*, p 30.

⁴⁷ *ibid*, p 35.

⁴⁸ *ibid*, p 39.

which recurs at various points in history. It cannot be defined by examining different examples for what they have in common because we do not know what counts as an example in the first place. Its structure also cannot be deduced by projecting its elements into a pre-ordered logical system - this would be to neutralise its "irreducible multiplicity" - it must be described rather than schematised. Instead, we must form an *Ursprung* of allegory - an origin in a special sense which does not seek to determine the single course in which a definitive form of allegory was constructed, but which describes "that which emerges from the process of becoming and disappearing" [Benjamin ⁴⁹]. Allegory only appears at certain points in history when the conditions are right, and in forms which are dependent on those specific historical conditions. Its appearances are as incomplete as the fragments from which it is composed - "incomplete except in the totality of its history" which remains in the realm of ideas. It is to this early epistemological conception of allegory that we will return when later we reencounter questions of objectivity and philosophical dialectics.

So allegory is a function of history both in its formation and its operations. To further illustrate this Benjamin informs us that the classical emblem in allegory is the ruin. The ruin expresses the transiency which is so important, the fact that things are always in a process of decay from the moment they are built, they are passing in and out of existence. The concept of *Ursprung* describes this process of becoming without a single point of origin and passing away without converging towards a final destination. Opposed to this is the symbol and its functioning, which had been the dominant form of representation since the Baroque ended. A typical symbol might be the flower, in which the ideal of beauty is captured and reflected in the moment of its blossoming. The symbol thus expresses transient eternity - the flower will die but the ideal it symbolised lives forever. The symbol focuses us on this single moment and freezes it as though we could pretend that its beauty is not fleeting. The ruin emblem however, always reminds us of the passage of time that turns objects into history - it is eternal transiency. Benjamin quotes similar arguments from Gorres - that the symbol appears as a total self-contained sign for ideas, whereas the allegory is mobile and dynamic. Symbolic time is focused on the mythic instant - the perfect moment in which beauty is revealed and petrified, allegorical time is historical, it records the ebb and flow of events across its wrinkled surface. The symbol is the total, the emblem is the fragment. "Allegories are, in the realm of thoughts, what ruins are in the realm of things" states Benjamin [Benjamin ⁵⁰]. For Benjamin thoughts are historical, they are specific to their period, they are artificial constructions which are subjected to endless criticism and they are fragments which are contingently connected in the world of ideas.

⁴⁹ *ibid*, p 45.

⁵⁰ *ibid*, p 175.



Albrecht Dürer, *Melancholia I*, woodcut, 16th century.



Richard Hamilton, *Just what is it that makes today's homes so different, so appealing?* Collage, 1956.

For the allegorist the material world is regarded as a collection of signs. Objects are studied and subjected to an endless process of interpretation such that each one becomes emblematic. This intense study causes a deadening of emotions and a melancholy which leads to an alienation of self from world and body so that any object loses its natural relation and usefulness and becomes instead a source of enigmatic wisdom - it becomes "strange" [Benjamin ⁵¹]. This is a defamiliarisation that occurs through a incessant questioning of meaning, a bit like the way that a single word, if repeated over and over again, seems to lose its sense and become strange. In the drama of the Trauerspiel a tension is created between the objects that make up the play and the ways in which they can be interpreted. Benjamin quotes from Cysarz to show how this process further alienates objects from their meanings. "Every idea however abstract, is compressed into an image, and this image, however concrete, is stamped out in verbal form". And Hallmann - "...as soon as an argument has begun it is taken up and expanded into a metaphor which is continually varied in numerous exchanges" [Benjamin ⁵²]. People, too, are turned into objects through their reduction into standard types which are then heightened through contrived melodramatic characterisations and performances. The tyrant character, for example, tries to impose order and to rule absolutely but finds that eventually his intense emotional impulses lead

⁵¹ *ibid*, p 140.

to indecision [Benjamin ⁵³]. The intriguer is also a character that has the potential to transform world history, but his plotting and scheming ultimately takes the place of any actual consequential action [Benjamin ⁵⁴]. This stereotyping sounds similar in form to Eisenstein's "typage" strategy of selecting characters to represent social forces, but in the Trauerspiel these characters resist being integrated into a purposeful social order – they are just fragments of personalities montaged together arbitrarily. This heightening of the materiality of the elements creates shocks and increases a questioning of what they could possibly mean. Allegories become dated because of their intention to shock, but the shock counteracts their absorption into the static symbol and renews the process of interpretation. By contrast Benjamin refers to the subsequent developments of the stage into opera in which the tension between meaning and language is resolved into tasteful decadence [Benjamin ⁵⁵].

In the space of the allegorical setting, different historical data are collapsed into a "figurative spatial simultaneity". The ruins of world history are combined into a single timeless state of nature like the pastoral paradise or a spatial setting like the court [Benjamin ⁵⁶]. Into this space fragments are piled up in the hope of an artwork, stereotypes are repeated in an intensification of their effects to the point of expressive rupture. Objects are collected fanatically, arranged according to significance but then rearranged haphazardly. There is no attempt here to control the montaging effect, just an open ended desire to reveal new meanings almost out of a sense of desperation. There are so many layers of interpretation that eventually we can envisage the point at which everything means everything else. The multiplicity of meanings in the natural world are in fact evidence of its Fall from God's grace, its distance from his one true Word, and knowledge of it is the knowledge of evil. As the allegorist turns ever deeper into his analysis of the material world, Benjamin offers us the image of thousands of emblems shattering on the rock face as they plummet down into the abyss of Hell, the bottomless pit of contemplation [Benjamin ⁵⁷]. But Baroque allegory is redeemed theologically, for when everything evil is revealed as the result of this process of construction, the world of evil is revealed an artificial one. It is man that has created evil, and his allegories spread out to deny the void. The search for the one true meaning leads instead towards multiplicity but eventually succeeds in confirming the existence of its opposite dialectically. Satan and God are two sides of the same coin. Allegory means the non-existence of its own basis - evil. It is empty subjectivity.

⁵² *ibid*, p 199.

⁵³ *ibid*, p 74.

⁵⁴ *ibid*, p 96.

⁵⁵ *ibid*, p 212.

⁵⁶ *ibid*, p 92.

In her well-known exposition of Benjamin's theories about allegory *The Dialectics of Seeing*, Susan Buck-Morss interprets the conclusion at the end of the Trauerspiel slightly differently. "In order to remain true to God the German allegorists abandon both nature and politics", they abandon the historical and material world of the Baroque for "the whole tradition of idealist philosophy that comes after it" [Buck-Morss ⁵⁷]. The dialectical relationship between truth and meaning is not preserved. The montaging technique that keeps its elements caught in a perceptual tension is no longer needed. But there is another example of allegory in which this dialectic is retained, in which the search for the true meaning is replaced by the search for utopia - the Kabbalist Messianic form of allegory. In *The Messianic Idea in Judaism*, Gershom Scholem - a close friend of Walter Benjamin's - explains that, like the Baroque allegorists, for the Kabbalist scholars the material world is interpreted as a series of signs but ones that contain divine knowledge in a coded form [Scholem ⁵⁸]. Kabbalah means "that which is received through tradition", but for the Kabbalist mystics that reception of tradition is a creative process that reinterprets the sacred texts in ways that completely transform any original meaning. They are made to function with reference to the present rather than the past, to reveal clues about the coming of the Messiah that are relevant for their own time. This willingness to challenge hypostatized dogma gave the Kabbalists a revolutionary impetus.

The knowledge that the Kabbalists seek reveals the hidden potential in the present for God's intended utopia of the future, when the Messiah returns. But this new utopia will not be a return to the old Garden of Paradise - the world will be rebuilt in a new form in unexpected ways. Because man has been granted free will, Kabbalist time is not mythical but historical. It is up to man to become aware of God's plan and to put it into action as is appropriate to each historical age. Man is ignorant of, not separated from God and the world is "shattered", not evil. Man must "heal" these shattered fragments by interpreting their divine sparks so that they can be "understood and explained in reference to redemption" [Scholem ⁵⁹]. As Buck-Morss argues, although the allegorist's practice of juxtaposing or montaging texts and images could be endless and arbitrary, there should come a point of "divine illumination" when a connection between the past and present becomes apparent and indicates where lies the potential for the future utopia - when the allegory is transcended by the "theological symbol" [Buck-Morss ⁶¹].

⁵⁷ *ibid*, p 231-2.

⁵⁸ Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991. p 173.

⁵⁹ Gershom Scholem, *The Messianic Idea in Judaism, and Other Essays in Jewish Spirituality*, Schocken Books, New York, 1971.

⁶⁰ *ibid*, p 42.

⁶¹ Susan Buck-Morss, *The Dialectics of Seeing*, p 237.



Johann Georg Hainz, *Little Treasure Cupboard*, painting, 1666.



Museum of Modern Mythology, *Twentieth Century Treasures*, 693 Mission Street, San Francisco.

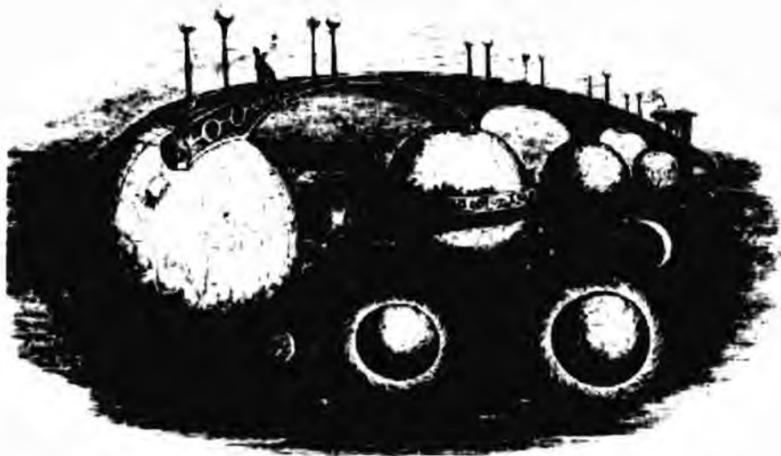
Photograph Matthew Selig. (From: Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991, p 351).

Through its utopian tendency, Kabbalist allegory provides a link through to Benjamin's own form of allegory - the materialist allegory which leads to a dialectical "illumination". The most radical break with previous forms of allegory is the fact that the world of nature or sacred texts is replaced by the man made world, which under the sway of capitalism is the world of commodities. For Benjamin the commodity form is an object which has lost its essential connection to meaning, in Marxist terms it has lost its use value and replaced it with an exchange value - its economic monetary value. Benjamin quotes Marx - "If one considers the concept of value, then the actual object is regarded only as a sign; it counts not as itself, but as what it is worth" [Buck-Morss⁶²]. This value is defined by the unpredictable factors of the marketplace, not by the constancy of human need - "their meaning is their price" [Buck-Morss⁶³]. But its price is also only a "fetishised" value, it only has exclusive meaning for the commodity as long as we assume that the forces of the market are natural and inevitable. Without intrinsic use value the

⁶² *ibid*, Benjamin quoted by Buck-Morss, p 179.

⁶³ *ibid*, p 181.

commodity is made "hollow", a "dead object", an emblem, but the commodity also has another dimension in which it can be filled with new meaning - the historical one.



Grandville, "An Interplanetary Bridge; Saturn's Ring is an Iron Balcony", *Un autre monde*, 1844. (From: Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991, 5.20).

It is the historical existence of the commodity which Benjamin uses to destroy its own fetish character, by reconstructing the past as an "ur-history". The ur-history is a history of origins, in the same sense of the *Ursprung* of the Trauerspiel study - of becoming and passing away. Benjamin's great Arcades project was to reveal the Nineteenth century origins of mass culture by direct reference to its nascent years in the Paris shopping arcades and growing consumer society of the previous hundred years. When used as historical emblems the commodities would become fossils, petrified evidence of the hopes and dreams of previous generations of consumers. By showing this ur-history of contemporary mass consumer society Benjamin planned to dispel the illusion of the fetishisation of commodities, the illusion that the endless procession of mass produced goods was leading inexorably to a utopian world instead of an endless cycle of promises and disappointments. At the same time that this myth of progress was challenged, the underlying desire for a utopia based on real social emancipation would be reborn to take its place. For commodities contained within them both the genuine desire for a better world and its frustration by capitalist social relations.



Miroir du monde (photograph), Street hawkers
wind-up toys outside a Paris Arcade, 1936.



Danielle Moretti (photograph), "Gor-don" talking with
children in the AT&T InfoQuest Center, 1988.

(From: Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991, p 364).

The Arcades project would be an allegory of the ur-history of mass culture, told through the concrete history of its commodities. The ideas and themes of this history would be constructed imagistically through the commodity emblem, "according to the cognitive principles of montage" [Buck-Morss ⁶⁴]. With its unexpected juxtapositions of objects, montage could destroy the illusory continuity of historical progress by "ripping" them out of their developmental histories and bringing them into stark contrast with the present. History would be "made strange" so the appearance of the capitalist world of consumer goods no longer seemed like natural and inevitable progress but as a result of social forces which could be challenged. In this allegory, the emblems of capital would be held together in a constellation of dialectical tensions and when two touched in a confrontation of past and present they would produce a "lightning flash" of truth in a "dialectical image" [Buck-Morss ⁶⁵]. It was the dialectic which would ensure that the emblems once brought together in montage would not immediately succumb to a natural appearing relationship but become politically charged through the conflicts which exposed the contradictions of capital.

Benjamin was radically opposed to all forms of progress, including the inevitability of Marxist social development. For Benjamin there is a process of continual change in which historical motifs take on new forms but do not "progress" as such. History is not progressing towards utopia because utopia is always already present in parallel Messianic Time, the dimension of historical forces and potentialities. In the allegory, montage can be used to "short-circuit" the

⁶⁴ *ibid*, p 218.

⁶⁵ *ibid*, p 219.

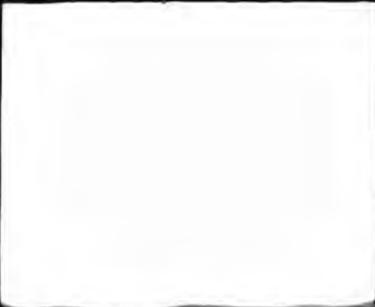
illusory causal linkages of history in a "tiger's leap into the past" where historical motifs are thrown together out of sequence [Benjamin ⁶⁶]. This stopping of the march of time allows the motivations and desires of the past to be recovered from Messianic Time and reclaimed for use in the present. For the past has just as many "magic" potentialities as the future.

This discussion completes a twentieth century history of the montage technique up to its dialectical use in Benjamin's conception of materialist allegory. In early collage experiments the Cubists used fragments of industrial materials primarily for compositional purposes in the same way that they had fragmented traditional pictorial techniques. The Dadaists tried to extend these disruptive implications of montage to symbolically fragment the order of the industrial world itself that they blamed for the catastrophes of war and nationalism. By contrast the Russian montagists saw an opportunity to use this technique to construct cinematic meaning in various ways as did the American montagists like D W Griffith, either by reconstructing subjective continuity or for the didactic purposes of a Marxist materialist analysis. For Eisenstein montage would function to defamiliarise the audiences ideological preconceptions and provoke them into resolving its conflicting fragments through the formation of a new "dialectically" attained understanding of the social world. The aims of materialist montage were then developed and clarified by Brecht in his theory of Epic Theatre where more progress was made in resolving the disruptive force of montage with its constructive role. For Brecht montage was already prefigured in the "interrupted" manner in which people paid attention to the competing and transitory images in mass media, making it possible to view things objectively and critically rather than through a subjective identification with a harmonious aesthetic composition. This interruption could also rupture historical continuity so that the current situation could be seen as the result of certain forces which could have been thwarted if alternative action had been taken. Benjamin developed this concept of montage further until it became more like a philosophy than an aesthetic, in which the world was seen not as a unified and complete whole resulting from a series of necessary and deterministically linked events but one alternative world among many whose mutually existing but contradictory forces could only be grasped partially at any one time. The allegory was a way of bringing them into a temporary configuration that preserved these dialectical energies.

This history of montage does not take into account similar techniques outside of artistic practices, the most obvious of which would be the scrapbook. Benjamin also makes reference to other practices such as collecting [Buck-Morss ⁶⁷]. The importance of the activity of the collector is that they take objects which have fallen out of circulation and are now useless. They are

⁶⁶ Benjamin, "Theses on the Philosophy of History". In: *Illuminations*, p 253.

⁶⁷ Susan Buck-Morss, *The Dialectics of Seeing*, p 241.



collected and put into an encyclopaedic system in which some residual emblematic value can be displayed. When the collection is arranged in such a way that these values reveal meaningful connections between these objects, it becomes allegorical.

The allegorist reaches now here, now there, into the chaotic depths that his knowledge places at his disposal, grabs an item out, holds it next to another, and sees whether they fit: that meaning to this image, or this image to that meaning. The result never lets itself be predicted; for there is no natural mediation between the two. [Buck-Morss⁶⁸].

But in a dialectical allegory when objects are brought into proximity with each other through montage the meaning they release is of a particular character that disrupts the continuity of ideological conceptions. When the objects are historically significant then they can reveal forces that have been obscured by misconceptions of history and myths of progress. They become a testimony to the hopes of the past and the disappointments of the present and the constant desire for utopia that is independent of the march of empirical history but in which it takes ever newer forms. They teach us the political message that we don't have to wait for history to unfold.

⁶⁸ *ibid*, Benjamin quoted by Buck-Morss, p 241.

Part 2

Montage - Transformation - Allegory



Richard Wright, *LMX Spiral*, Futurenatural Films, postcard, 1998.

LMX Spiral

The aim of the film *LMX Spiral* is to recast the present in terms of the recent past. By assembling the iconography of the previous two decades of British history we can trace the way in which people's hopes and fears have changed, allowing us to understand where our current perspective on the world has come from and where it is going. There are two main socio-cultural motifs that are used dialectically as an axis on which to organise this allegory - the enterprise culture of the eighties and the lottery culture of the nineties. *LMX Spiral* charts the transition between these two periods in terms of a wide variety of cultural iconography, music and technology but not as a historical progression, more as a window in which the same thematic motifs reappear in different historical forms. The eighties is quite special as being the last period of British history in which there existed a strong belief in the promise of an economic utopia attained through human agency, eventually undermined by the prospect of human corruption and environmental catastrophe. The aspirational work ethic of the time was reduced to a feeling of helplessness in the face of the caprices of the financial market and by the nineties the individualist dream of limitlessly "bettering" yourself had re-emerged as a disillusioned

acquiescence in the face of random disasters or a last chance gamble for happiness on a lottery ticket win. The market could not in the end provide any underlying natural order through which progress could be guaranteed.

London Market eXcess (LMX) Spiral is a term used in the insurance industry to describe the practice of re-insuring a policy over and over again, decreasing the premium at each turn in the "spiral" and thereby increasing the risk that there might not be enough to meet future claims. After a wave of unprecedented natural and man-made disasters by the late eighties, this practice had contributed to widespread bankruptcies and the near collapse of large financial institutions like Lloyds of London. The creation of Britain's first national lottery in the early nineties seemed to confirm the feeling that risk was now the defining condition of social and economic life.

This film develops further the artist's aim of revealing a process of historical change by synthetically constructing transformations of emblems, memories and genres similar to earlier works like *Heliocentrum* [White and Wright ⁶⁹]. These sequences function partly as an objective record of the period which progressively yield to repeated viewing and analysis to evoke both subjective associations and to establish the relationship between actual historical elements with their ideological roles. The film is a densely integrated mixture of treated live action and digital effects, constructed out of six "life style" sequences with recurring motifs of excess, yearning, and looming disasters all around the central image of a gigantic spiral of credit. These are punctuated by a game of Russian roulette, lottery bullets and a gathering storm of weather symbols which increase in pace to a climax of catastrophic proportions.

In *LMX Spiral* cultural references are extracted from the historical period from the late seventies to the early nineties and emblematised. These are then played off against each other to finally show how the aspirations of British society have taken different forms expressed through all manner of commodities. By arranging these emblems in an allegorical format it is possible to read off the coded desires of the past and to criticise their expression in the present. When attempting to collect a set of recognisable emblems of the past that will be meaningful to people in the present it is important to remember that "memories of the eighties" do not exist. Iconic references to a common past are simply not part of the mental baggage that people carry around – their memories are too far internalised into their subjective experiences. Likewise, if one were to concentrate only on compiling authentic historical artefacts then one might easily run the risk of arriving at a set of motifs that had no emblematic power, that failed to articulate the desires of the time. Therefore memories have

⁶⁹ Jason White and Richard Wright, *Heliocentrum*. Soft Future Productions, Beta SP, 1995.

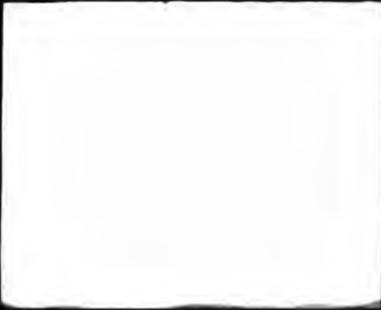
to be evoked or constructed. In assembling the evidence from the past it is also important to realise that their historical authenticity is subordinate to their capacity to articulate collective desires. In the construction of a dialectical allegory the primary function is the philosophical-epistemological role of the object and not an ontological status which is based on their factual position within the continuum of history [Owens ⁷⁰]. We are looking for objects that when arranged together in the allegorical format will release insights into the desires which motivated our interest in them. Benjamin's dialectical allegory is foremost a philosophical form, used to decentre the categories of meaning and understanding that we live our lives by so that we will no longer be the unwitting victims of them. We will be able to use the contradictions created by putting these philosophical categories like enterprise and risk, talent and luck, work and gambling into a dialectical tension with each other.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

LMX Spiral follows the recent history of design in which familiar motifs can be traced back to earlier ur-historical forms. What follows gives some idea of the range of motifs and their dialectical use that are included in the film. In the early eighties graphic design was dominated by simple geometrical shapes and patterns and bold primary colours. They were hard edged and confident, sharply delineated. Black and white was also very popular, such as in two-tone fashions. Checker board patterns and grids were common as well as stripes. Designs were often made up out of small geometrical shapes like squares, circles and trapezoids or Friesian cow patterned grain finishes which seemed to sparkle as your eye raced over them. In the first two or three fantasy sequences in *LMX Spiral* the main character - the Lucky Fella - is seen surrounded by showers of big chunky patterned objects and period commodities, as though bathed in a cornucopia generated by the economic boom time. Towards the mid eighties these design motifs became looser in execution but still just as bold. They were now seen rendered in more gestural styles, painted with large

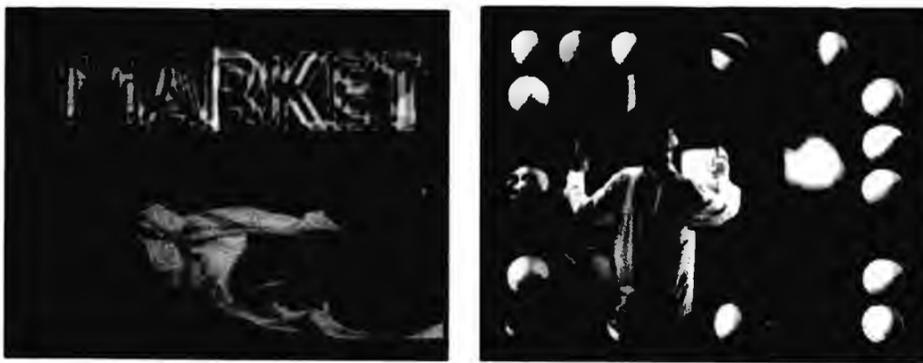
⁷⁰ Craig Owens, "The Allegorical Impulse: Toward a Theory of Postmodernism", *October*, Vol 12, 1980. pp 69-70.



brushes or black and white pen and ink. Colour washes would be complemented by decorative spidery patterns. A sort of playful Rococo feel now predominated after the strident and monumental style of the earlier years - lots of similar Rococo motifs like shells, fish and retro imagery like fifties cars or personal accessories like watches. Colours became more muted and pastel shades like powder blue, salmon pink and lemon yellow appeared. By the end of the eighties the decorative style had intensified under pressure from technology inspired youth cults like Chaos Culture into psychedelic sensations. Fractal graphics made an appearance - its intricately complicated patterns of tendrils and spirals were decorative to a degree at which they became hallucinogenic. A Mandelbrot set fractal can be seen in the background of the lottery ball shots near the end of the film. Under further pressure from new imaging technologies diffused through software like Photoshop, strong patterns and retro sampling imploded under layers of effects and transitions and melted down into the early nineties style. Now the firm edges and bold patterns of the eighties have been replaced by soft merging forms and blurred filmic effects. To reflect the loss of certainty after the eighties boom and the nineties recession shapes have receded into vague unsure patches of colour and smudged imagery, as though it is no longer possible to see the way forward with such clarity. Colours have passed from the bright primaries of the early eighties to more mellow pastels to the cool blues and greens of the nineties occasionally punctuated by acid yellows and rusty reds and browns. By the end of the film the colour scheme has been sharply reduced to cool monochrome shades and blurred layer effects. The depictive methods of the nineties seem more "naturalistic" than the strident eighties, but when compared in this allegorical presentation we can see that the nineties stylisations seem tinged with the melancholy of lost dreams.

There is considerable use of text in the film, from the title itself to a sequence of neon word signs and a scene in the restaurant where a pitching session between two businessmen is portrayed through a choreography of scurrying phrases and idioms. Many authentic eighties type faces are used, usually designed by Neville Brody, and one can still detect traces of eighties stylisations in popular type faces of today (although this contemporary style is only alluded to in the end credits sequence). Similar to other graphic design changes, eighties fonts were bold, often absorbing retro elements from art deco especially in the Brody examples, and increasingly used as images in their own right. This tendency can be seen even in common techniques of mixing different fonts and cases and in stretching out the letter spacing in a word across the page or screen until the unity of each single word broke up. Immediate legibility became secondary in certain circumstances. During the nineties text became subject to the same loss of clarity as images. Exemplified by new design companies

like *Tomato*, words were displayed in distressed type writer style fonts and animated in blurred, shifting, miss-registered layers as though the technology of representation could no longer be relied upon to accurately convey surety of meaning.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

The actual words and phrases used in *LMX Spiral* are typical of the period of the eighties, though some are still heard today and often in a new derogatory context. "Market Forces", "Power Lunch", "Bottom Line" and "Crash and Burn" have either now entered the language or become iconic of the earlier period. By suddenly introducing them into contemporary dialogue it becomes clear how the symbolic meaning of this language has become radically historicised over the last two decades. Most evocative, especially for those that can remember the event, is the voice-over of Mrs. Thatcher's 1979 election victory speech outside No. 10 Downing Street. Instead of giving the traditional answers to the reporters' questions about what her first actions as prime minister would be, she set the ideologically sanctimonious tone of the coming years by quoting the prayer from St. Francis of Assisi. In the final sequence of the film when the lottery balls of the nineties are colliding with the credit economy of the eighties, Mrs. Thatcher's words return, distorted by the treatments of acid house music. Her quotation of phrases like "Where there is conflict, may we bring harmony" now only accentuate the polarisation of British society that occurred between yuppie go-getters and the armies of unemployed "social scroungers". Words like "Where there is despair, let us bring hope", while originally seeming to refer to the utopian potential of the new enterprise culture can now only appear to offer us the unlikely hope of a jackpot lottery win for the very exclusive few.

A different kind of change in the use of language is illustrated first in the sequence of flipping boards of stock market figures after the title sequence at the beginning. It is designed partly to resemble the indicators at railway stations that direct the flow of thousands of daily commuters and partly to allude to the operation of the new computerised

trading floors that promised immediate updating of prices from around the world. As financial deregulation in the mid eighties allowed banks and other institutions to start financial speculation the amount of gambling with stocks and shares created a new "casino economy". At the end of *LMX Spiral* the same flipping indicators now show the numbers of lottery tickets as the logical endgame of risking the money markets.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

The architecture of the eighties often had strong allegorical qualities in itself such as its mixing of historical motifs and a symbolic use of materials that contradicted their structural value. Most of the fantasy sequences in the film contain some period architectural examples, an early one being a model of part of Charles Moore's *Piazza Italia* built in New Orleans in the late seventies. The reproduction Roman classical columns, fountains and wide flights of steps are emblazoned with neon strip lighting in pink, blue and yellow and shiny chrome metal cladding as modern materials decorate ancient motifs reminiscent of *Caesar's Palace*. The *Piazza* was originally going to be the centrepiece for an entire complex of shops and recreational facilities, but now stands alone in the middle of the downtown skyscrapers. This reconstruction of ancient ruined civilisation has itself lost its original function and now sits emblematically as a kitsch playground of Arcadian dreams in the midst of modern corporate ambitions.

Most of the other architectural references are actual London buildings such as the playful and colourful design by John Outram of his *Wapping Pumping Station*. Many of the backdrops are built up out of the new eighties style of city office buildings like Beaufort House and Broadgate with their neo-classical allusions, multicoloured brickwork, marble and metal frames, curved windows and bays. In the opening sequence of the film these and other examples like the wharf warehouse renovations are constructed out of shards of brickwork, marble and glass which fly out from the spiral and cover the old council houses and sixties office blocks to obliterate the unsightly reminders of past architectural

aspirations. In the final scene of the film during the storm a vast landscape of buildings is reduced to ruins by plummeting lottery balls as they fall from the sky and tumble through them like skittles.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

The music track alternates between a parody of action films, soap opera and eighties high camp to give feelings of contrived triumphalism ending in the escapist rave music which now functions historically as a kind of eighties requiem. The early eighties style of hard driving electro-funk distils the uncompromising work-hard-play-hard ethic into strong, militaristic drum-synth beats and soaring brass fanfares. These become looser and more discordant as the film progresses until at the staircase scene a pivotal change in mood is announced by the strains of the house sampled Twin Peaks theme, sending us hurtling down the spiral of negative equity. The regimented beat of the earlier times is now speeded up to heighten the libidinous striving of the bourgeois individual until it dissolves into an ecstatic loss of centre. The economically directed cash flow desire of the yuppie culture has been released in the aimless pursuit of the immediate and collectively experienced sensation of the rave. Speed has become ecstasy.



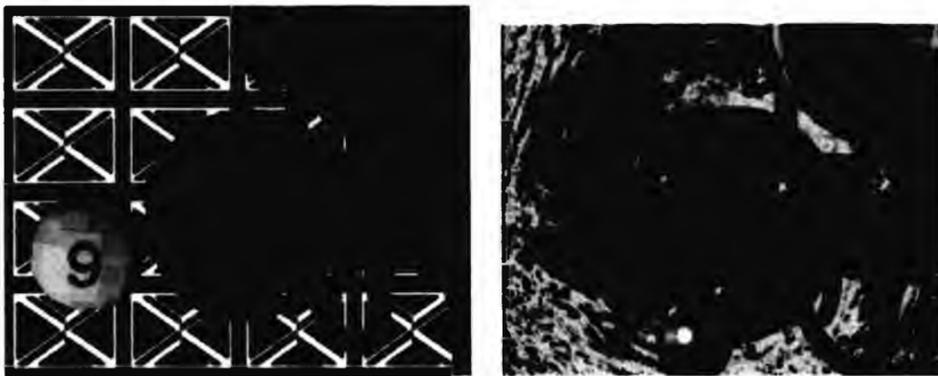
Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

The main method of controlling the pace of the film is through the gradually worsening weather conditions as seen mainly in the fantasy sequences. At the start of the film the sky is bright and graphically uncomplicated and it rains status symbol commodities that bathe the Lucky Fella as he gazes upwards. The weather symbols are modelled on the BBC weather forecasts which have not changed their simple and crisp design since the eighties. The weather symbols used at this stage are all those of bright sunny weather like the sun burst, white clouds and high pressure isobars as they dance across the screen. Later some rain clouds appear and run rings around the protagonist, then wind speed symbols, hail stones and finally a full blown storm including lightning and blinding sheets of rain. The symbols themselves are stylised differently throughout the film from early graphic shapes and later to more realistic rainfall, flashing storm clouds and gloomy atmospheric effects. The backgrounds also progress from simple spiral patterns to swirling skyscapes and whirlpool effects until at the spiral staircase scene it has turned into a vortex of tumbling money and credit cards being sucked down into the depths of Black Monday and the stock market crash. A strong central motif that appears alongside the weather sequences is the financial spiral of money which increases in height and instability every time we see it. It begins by sucking the Luck Fella's money out of his wallet in the opening sequence and signifies an economy based on mounting credit without firm foundations. As the excesses of the eighties continue it climbs in height until it can no longer support its own weight of pretensions and comes crashing down helped by the storm of cascading lottery balls. The weather generally signifies the unpredictability of external events that threaten any attempt to build a utopia based on continually expanding profits without limits. These events are not only unforeseen natural disasters like the Great Gales of 1987 but also the man made ones like those caused by human corruption typified by insider trading and the mounting expense of correcting years of chemical pollution caused by the industrial growth of the fifties and sixties.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

Some references to the new recreational media of the eighties are included like the computer or video games which had at least two boom periods during that decade. In one scene near the end where the weather conditions are deteriorating the backdrop is filled with rows of sprites from the space invaders arcade game which perform their characteristic dance as they nudge down the screen to engulf the players tank. At another place in the film during the staircase sequence rows of coins spin into view to frame the screen. These are then quickly eaten up by a pac-man sprite that races around after them. This animation is a reference back to the early casino scene where the coins also form a continuous frame around the screen to reflect the money and gambling theme. In the latter sequence the insatiable pac-man has entered the financial game and the players skill or luck has finally run out.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

There is a less obvious technological theme running through the film which traces the history of the recent growth of digital effects in the media industry. One cause of the stylistic qualities of eighties broadcast graphics was the increasing use of computer animation. In *LMX Spiral* there are a series of computer animated shots of guns which are loaded with lottery balls for a game of Russian Roulette which ends with an implied final catastrophe. The guns and balls are initially rendered at low resolution and flat shaded to mimic the appearance of early computer graphics. Some of the skies in this part of the film are also stylised in the same way such as the luridly coloured horizontally graduated backdrops. In early computer graphics work the computers were too slow to render a full set so the backgrounds were always restricted to simple patterns or flat colours. The rendering sophistication of the guns progress through simple smooth shading, more complex modelling, through texturing effects, shadows and reflection shaders to the final gunshot where computer simulation has achieved full filmic "realism". In a way, this progress in media technology contradicts the lack of social progress.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

The central character in the film - the Lucky Fella - is portrayed in a series of six "life style" scenes in which we see him in various stages of upward mobility. Each scene is shot in a style reminiscent of a commercial film form like an advert or a soap opera. The kitchen scene is given a warm colouring and processed with a glow filter at the telecine transfer stage which is still typical of the techniques applied to many adverts today, and contributes to giving the scene a "Gold Blend" advert look. The party scene near the beginning is strongly coloured with red and blue lighting like the theatrical look common in early eighties film making. The windscreen cleaning scene near the end is more "realistic" using natural lighting and overcast weather conditions and has a more soap opera type subject and treatment - it is the only exterior live action scene in the film. It is here that the yuppie character is confronted with the "social scrounger" character as his nemesis - the image of the dole culture that dominated large areas of society in the eighties - the alternative future that the Lucky Fella has been trying to escape from but to which he may still succumb if his plans for success do not materialise.

Emblem - Fetish - Dialectic

The various film genres and styles that are referenced throughout *LMX Spiral* - soap operas, adverts, pop promos, even video art - are used as emblematic of the cultural forms of the time. This is in addition to the reproduction of specific objects as emblems like bank notes, lottery balls, weather symbols, etc. If genres can be read historically through their changing styles and modes of representation then they are open to emblematisation. Genre forms are used as a way of indicating how the film is intended to be viewed by the audience. The audience knows that a western will contain certain settings and costumes, there are a range of standard character types and that these characters even have a standard set of goals

that tend to motivate them. Certain genres also go in and out of fashion over different periods – at this moment in the nineties the who-done-it movie has disappeared but science fiction is booming. If different genres are montaged together in the same film then we can more clearly see their specific ideological presuppositions - it will have a defamiliarising effect. It will also help to avoid too much narrative and psychological continuity by placing what would otherwise be the same character in such different modes of representation. As well as genre and its stylistic attributes the technical format of a film is often specific to genres, modes of representation and historical periods. The "shaky cam" effect of hand held video cameras, for instance, has become a defining feature of certain genres of pop promo production and youth magazine TV programmes. If the recording medium is Super 8 instead of video - recognised by it's distinctive grain and colour gamut - then a historical dimension is also introduced into its interpretation. And the level of perceived production values serve to place a work in a position within the economic levels of the film making industry which is historically dependent due partly to the cost and technological development of production equipment available at different periods.



Jean-Luc Godard, *Le Gai Savoir*, 35mm film, 1968.

This means that the way that films are watched is historical as well as the objects or emblems that may be depicted in them. The way that films are structured to produce meaning changes over time - the development of the documentary form, the rise of special effects movies, the growth of the pop promo and related televisual forms. The methods that avant-garde film makers have used to reveal ideological factors in these forms frequently uses the dialectical approach though not necessarily in an allegorical format. A good example of the continued influence of Brecht's ideas in this regard is the way in which the work of Jean-Luc Godard and the Dziga Vertov Group developed, especially after 1968. Whereas Brecht, like Eisenstein, concentrated on juxtapositions based on the objects that

are depicted in the film or on the stage, Godard goes a step further by juxtaposing different film making conventions and contradicting their intended functions. Godard and his contemporaries combined Brecht's materialism with readings from semiotics and psychoanalysis to arrive at methods of critiquing the dominant modes of signification. As Peter Wollen has discussed, these "acts of negativity" are aimed at

a splitting apart of an apparently natural unity, a disjunction which gains its power from its apparent naturalness, the impression of necessity which seeks to bind a signifier to a signified, a sound to an image, in order to provide a convincing representation of the world [Wollen ⁷¹].

Godard's "counter cinema" is constructed in direct opposition to mainstream cinema and many of his films post 1968 deliberately disrupt these accepted conventions in the process of signification without necessarily positing any alternative meaning of their own, unlike Brecht and Eisenstein's intentions of explicit political pedagogy. In another essay *Godard and Counter Cinema : Vent d'Est*, Wollen gives a long list of all the common ways in which mainstream cinema constructs meaning and the ways in which Godard "negates" them [Wollen ⁷²]. Hero identification is replaced by multiple main characters or commentaries, narrative continuity by interruptions and digressions, fiction is mixed up with reality, endless quotational elements are used instead of original content or footage. Always the language of film making has to be foregrounded - the process of making the film must intrude at every opportunity to remind the audience of the artifice of what they are watching rather than to seduce it into accepting it as unquestionable. Eventually Wollen suggests that Godard's techniques degenerate into mannerism, the wilful flouting of rules for its own sake. Despite everything, representation itself is not bad, and cannot be replaced by a search for objective truth. The negation of modes of representation as ideological can lead to an abandonment of subject and purpose and the use of the dialectic can become a formal technique limited to the field of aesthetic conventions.

Probably the most extreme form of this intention to use film to undermine modes of representation was the Structuralist Materialist movement of the Seventies. "The process of the film's making deals with devices that result in demystification or attempted demystification of the film process" wrote Peter Gidal in his succinct manifesto of 1975

⁷¹ Peter Wollen, "The Two Avant-Gardes". *Studio International*, Nov/Dec, 1975. p 174.

⁷² Peter Wollen, "Godard and Counter Cinema : Vent d'Est" (1972). In : *Readings and Writings*, Verso, 1982. pp 79-91.

[Gidal ⁷³]. The objective was to resist the constructions of naturalism by continually returning to the basic material properties of the film itself before the scene that was being filmed could be established and accepted in the mind of the viewer. This is a dialectical method and is quite different from that branch of abstract or simply structural film making in which the visual dynamics of filmic techniques are articulated either for aesthetic or for ontological ends. "The dialectic of the film is established in that space of tension between materialist flatness, grain, light, movement, and the supposed real reality that is represented" [Gidal ⁷⁴]. Structural Materialist film is more about *structuring* than structures themselves - it is about the "coming into presence" of a film in the mind of the viewer [Gidal ⁷⁵]. Film makers like Gidal, then, tried to force the project to a level which preceded that at which ideologically motivated genres and styles properly took shape, but in this way also ran the risk of excluding a critique at this higher level. It may be difficult to appreciate how these kinds of basic structural "devices" can be relevant to the processes of the dominant forms of cinema that we are habituated to – this may not be the point, but it is still a limitation.



Jean-Luc Godard, *Tout va Bien*, 35mm film, 1972. A factory strike represented as a doll's house.

Gidal, like Godard inherits many techniques through Brecht like the use of interruptions or the desire to foreground the mechanics of production. The aim is also to oppose naturalism, which can be defined as the form of representation which is accepted at any particular time as being relatively unmediated. Its primary quality has been thought by some theorists to be continuity – in the sense that things follow on necessarily from one to another in a way that does not allow the authority of their progression to be questioned. This is referred to by Wollen as narrative transitivity, by which story events are made to follow causally and

⁷³ Peter Gidal, "Theory and Definition of Structuralist/Materialist Film", *Studio International*, Vol 190, no 978, pp 189-196, 1975. p 189.

⁷⁴ *ibid*, p 189.

⁷⁵ *ibid*, p 189.

necessarily from one to the other [Wollen ⁷⁶]. This requires the audience to merely accept what they see passively instead of more actively engaging with it or being provoked into a response. Such forms of representational continuity are not only used ideologically to encourage the viewer to accept what they are watching uncritically but are also ideological in themselves because they imply that it is possible to grasp reality as a whole unit of integrated meanings [Bürger ⁷⁷]. It also implies that this continuity is extended to the subject who is watching the film and identifying with the actions [Mulvey ⁷⁸] - they are reinforced as a single individual at the centre of and controlling a consistent space, unitary and not able to recognise any challenge to their "natural" integrity.

Montage is one way to disrupt this seductive naturalism by introducing conflicting symbolic or aesthetic elements into the flow of events, dialectically or otherwise. Brecht's ultimate aim was to use this to create a perceptual space in which a form of rhetoric could be developed for political didactics. In order for him to communicate his oppositional political thoughts he had to present them using modes of perception which would break up the dominant modes of ideological thinking. Godard took this a stage further by directly negating what he claimed were dominant bourgeois modes of generating meaning such as the prevalence of genre forms. Benjamin's desire was to montage elements together without presupposing what the results might be, only to privilege the juxtaposing of materials in a historical relationship in the form of the allegory in the expectation that the "natural" continuity of history as progress would be revealed as a myth. In *LMX Spiral* my intention was to show the recent history of some myths of economic progress and the influence they have left on our current hopes and fears.

The original effect of the allegorical montaging of emblems in the Baroque period was to loosen their original meanings and invite reinterpretations. The historical setting in which they were typically rearranged helped this process by providing a distancing from their "natural" place in time where they possessed their initial significance. The Greek gods in Christian times no longer rule the heavens but represent secular human vices and virtues, ruins can no longer function as a part of a daily life of architectural functions but refer back to the values of their builders and lament the passing away of all worldly things. The contemporary artist that has been identified closely with the allegory of the Baroque is Ian Hamilton Finlay.

⁷⁶ *ibid*, p 80.

⁷⁷ Peter Bürger, *Theory of the Avant-Garde*. p 79.

⁷⁸ Laura Mulvey, "Visual Pleasure and Narrative Cinema", In: *Film Theory and Criticism*, (ed. By Mast, Cohen and Braudy), Oxford University Press, Oxford, 1992. p 751.

Finlay does not use montage either to construct arguments or narratives nor to rupture perception through violent conflict but to carefully present images and objects in a "free floating metaphor" [Abrioux ⁷⁹]. Finlay's work uses the allegorical methods of combining mottoes and striking images to begin a process of meditation in the viewer on what these enigmatic conjunctions could mean. Sometimes there is no attempt at montage at all and only a single emblematic image is assertively presented, as though it ought to mean something although we cannot say exactly what. Sometimes a commentary is explicitly included with the work to indicate the beginning of a process of interpretation which would appear to be potentially endless. These commentaries are citational and not didactic, they depend on building a system of references to other art works and cultural forms in order to suggest resonance. This is a poetic way of working based on metaphorical echoing or rhyming, but it is also a form of rhetoric, one which does not aim at a closure of meaning but opens up further interpretation. The obviously artificial nature of the images invite further investigation. Curiosity replaces shock and contemplation replaces attention in what Finlay quotes from Hegel becomes "a thinking consideration of objects" [Abrioux ⁸⁰].



Ian Hamilton Finlay, *The Present Order is the Disorder of the Future*, 1983. (With Nicolas Sloan)
Stone sculpture.

Finlay's approach makes quite tough demands on its audience's powers of erudition in order to follow him on his journeys of contemplation. But Finlay simply puts that down to a culture

⁷⁹ Yves Abrioux, *Ian Hamilton Finlay*, Reaktion Books, London, 1992. p 105.

⁸⁰ *ibid*, p 293.

that lacks "purity, commitment and rigour". There is a desire in Finlay's work that the meditative perambulating should lead to "a process of evaluation" as the nearest thing we get to a challenge or provocation in the mind of the viewer. In fact Finlay's work is best when it is regarded as pure allegorical poetry rather than as a political comment using one of his frequent references to the French Revolution or less frequently to the Third Reich. His piece *The Present Order is the Disorder of the Future* (1983) in which the text of the title is carved onto stone fragments and placed in a landscape is a perfect summation of the Baroque allegorical spirit. A form of concrete poetry constructed in history as well as formally in materials, its placement in "nature" reconfigures the environment into "historical nature", the landscape becoming a concrete metaphor for the forces behind the inevitable passing away of man, materials and ideologies.

For Finlay, the critical interpretative process is stimulated by the sheer incongruity of the literal meanings of the object or text combination in their setting. For Brecht too, it was necessary to maintain a separation between a sign and its natural referent, so that the spectator did not lose themselves in an easy empathy with the content but remained alert. Brecht referred to this method as "distanciation" or the *Verfremdungseffekte*, the alienation of the spectator from the events depicted so that they would view them more objectively. One way this could be achieved was not by rejecting representation but by admitting to its own process of construction. As Benjamin quotes from Brecht - "The supreme task of an epic production is to give expression to the relationship between the action being staged and everything else that is involved in the act of staging per se", and "The one that shows shall be shown" [Benjamin ⁸¹]. Benjamin uses this approach to help construct a dialectic between nature and history such that each term implies a criticism of the other [Buck-Morss ⁸²]. The danger of mythic thinking was that history and nature would become conflated ideas so that whatever happened historically would be accepted as a natural occurrence. This was seen most clearly in the pseudo-scientific theories of "social Darwinism" which amounted to the acceptance of the current status quo as the inevitable result of a naturalised social evolution - the claim of social injustice then became a logical impossibility. Nature and history needed to be juxtaposed dialectically so that on the one hand the natural state of things would be understood as having been produced historically by human subjects and on the other history is not something that progresses inexorably but that its objects suffer decay. This could be achieved by applying the linguistic signs for nature and history to carefully chosen real world referents that brought the meaning of these

⁸¹ Walter Benjamin, *Understanding Brecht*. p 11.

⁸² Susan Buck-Morss, *The Dialectics of Seeing*, p 59.

signs into conflict by highlighting their contrived process of signification. Buck-Morss uses as an example of how this works a photomontage by John Heartfield, a piece that was also well known to Benjamin at the time [Buck-Morss⁸³].



John Heartfield, *German Natural History*, photomontage, 1934. (From: Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991, 3.1).

In Heartfield's *German Natural History* poster, we see the three biological stages of development of the Death's Head Moth combined with three key figures in the development of the Third Reich from the Weimar Republic. The head of Ebert, the first chancellor of Weimar, is placed on the body of the caterpillar stage, the head of Hindenburg on the chrysalis stage, and the head of Hitler onto the emerging moth (all of them wearing smart top hats). At the same time, Buck-Morss points out that the death's head skull sign of National Socialism is seen gradually forming at each stage until it appears on the back of the Hitler moth, signifying a retrograde step towards a repressive political regime in contradiction to the biological evolution. But more importantly, the effect of juxtaposing natural development and political history using the obviously artificial language of montage reveals the dialectical tension between nature and history, in this case the mistake of assuming that a political process is a sequence of narrative events that unfolds with the inevitability of natural development. It is the "unnatural" looking effect of the montage technique, in which the characters appear quite comical, which casts doubt on any viewer's

⁸³ *ibid*, p 60-62.

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⁶³ *ibid*, p 60-62.

literal, uncritical and "natural" interpretation of what is portrayed. If we could imagine a way of combining the moth's development with the history of the Third Reich which appeared visually seamless and plausible - perhaps like the diagram of the evolution of man from primates which Buck-Morss also refers to - then the dialectical effect would be lost. But for the dialectical effect to enter perception, the use of montage must "allow the gap between sign and referent to remain visible, thus enabling [Heartfield] to represent their identity in terms of a critique" [Buck-Morss⁸⁴].

The whole implication of the montage technique is that objects are put together in such a way that their separateness remains visible, almost through the contrast of their proximity. In dialectical montage the objects themselves as signs have referents and meanings which can also be made to appear separate or put into conflict by their peculiar juxtaposition whereas in other circumstances they might become confused under ideological assumptions, such as the pair nature/history. But the question remains as to whether for the dialectical effect to be possible visual montage is also a necessity. For the montage theorists it is the visual conflict between image elements that sparks the defamiliarisation that sets all the other terms of the signifiatory process into question. But perhaps there are other ways to put these terms into a creative or dialectical tension.

In film making, the opposite of montage editing or the straight cut is the transition sequence. But this does not mean that montage editing always leads to conflicts or dialectical effects. We have already noted Pudovkin's "building block" approach to montage and continuity editing is a standard convention of naturalistic cinema. The situation is further complicated by the fact that what is termed a "montage sequence" in film making is usually a group of similarly related shots which are cross faded together, like the opening sequence in *Psycho* where a succession of city shots gradually converge on a single room in a single building to emphasise the penetration of the interior life of the main characters within a large anonymous urban population [Hitchcock⁸⁵]. It is also not the case that any kind of conflict-producing montage, at the visual or symbolic level, will lead to a useful dialectical insight, one that will "reveal the contradictions of Being" as Eisenstein stated. Montage is one way of producing the defamiliarising effect but not necessarily one which will be dialectical. It is only because biological development and political history in the *German Natural History* example are both temporal processes that appear to reach a conclusion that we can perceive the level at which they conflict dialectically - the level at which we assume that

⁸⁴ *ibid*, p 62.

⁸⁵ Alfred Hitchcock (dir.), *Psycho*, MGM, 1960.

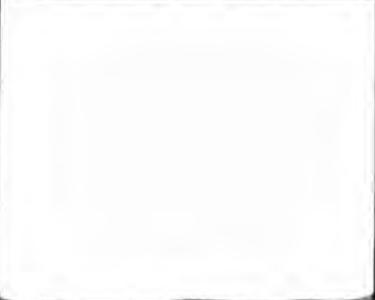
history is deterministic just because nature is cyclic. The cognitive error is suggested by the visual and signifiatory incompatibilities of the imagery and caption, just as in Eisenstein's terms a new concept arises from the sensual level of perception.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

In *LMX Spiral* the process of historical change is represented by a gradual transformation of emblems through the eighties to the nineties. For example, the opening sequence shows several dated and tired looking office buildings and blocks of council houses being covered by fragments of glass, marble and painted steel. These shards are spewed out by the tornado-like spiral which is tearing through the city, "modernising" the previous generation of "failed" architecture with the colourful new optimistic designs of the eighties. The sun rises above a city reborn as a vibrant and stylish financial metropolis at the dawn of the new decade. But we can already see that these designs are only new façades to cover up the unsightly reminders of the past, and one day they may shatter and pass away again just as quickly as they appeared. This sequence is produced using computer animation to construct digital transformations. The designs are almost all based on real London buildings which have been digitally modelled and then "exploded" into fragments which can be recombined.

This kind of digitally synthetic transformation is quite different from the way it could have been represented using standard montage techniques. We could have had a sequence of conventionally edited shots of actual construction work going on in which the architectural changes would have been represented quite literally. A montage technique based on principles of collision might have shown the old buildings directly juxtaposed with the new ones, thereby leaving open to question how the latter came to replace the former. This might have been combined with shots showing other sides of these historical changes, such as people wearing punk rock and other seventies fashions against people in new suits and shoulder pads, different hair cuts, etc. This form of montage would indeed have provided the interruption to visual (and historical) continuity expected of it. The digital façade transformation might be criticised for



portraying a too seamless or spectacular transition whose continuity destroys the distance between sign and referent supposedly necessary for critical distance. But although these transformations are (almost by definition) visually continuous, that does not necessarily mean that they are continuous in the naturalistic sense, that what they signify is not unfamiliar.

On the submitted VHS video tape there is a section immediately after the film "LMX Spiral" where we can compare the effect of different montage and transformation transitions applied to the same subject. We can see three versions of a couple of shots from the intro sequence where the old buildings are being replaced by new eighties style facades. In the first version a shot of a wharf warehouse is simply cut with a shot of an eighties gentrified apartment conversion. The cut effect is quite harsh and gives no indication of how the old was replaced by the new - the viewer is "alienated" from any predefined knowledge of the "natural" relationship of the buildings through this discontinuity but it is difficult to gain any further insight. In the second version the old warehouse is transformed into the new using a morphing based transformation effect. This time the effect is so smooth that it is difficult to register any aspect of the relationship between the old and the new, other than to accept that they are somehow conflated. In the last version we see the converging fragments transformation that was actually used in the film. Here we can appreciate that the new is related to the old by a process of superficial (and possibly transitory) disguise, and the fact the transformation itself is not physically possible arrests our attention in a way that is still akin to the "shock" or "alienation" effect.

The built up façade transformation of *LMX Spiral* provides a visual allegory of a moment of historical change in the design of architecture and the implementation of a heroic building programme of urban redevelopment. But although this is achieved not through montage but through a visually continuous and realistically coherent representation, the actual event that is signified - a shower of broken particles coming together to perfectly form an new architectural façade - is quite obviously a fantasy, a construction. It is not compatible with what we "naturally" expect in the everyday world and therefore invites a more active interpretation. The conflict occurs on the level of what is signified. Because the original building and the new façade that forms over it are historically related (and because this is part of a longer sequence in which these signifying functions are reinforced, by the spiral tornado for instance) a dialectical understanding of the transformation is possible. A digital transformation can be as "unnatural" as a Heartfield montage yet it can look "realistic" because its naturalism and realism are on different levels of meaning.



John Landis (dir.), *Black White*, MJJ Productions, video, 1992. Digital effects by Pacific Data Images.

This is not to say that all types of digital transformation can be dialectical. In the early to mid nineties the most popular digital effect in the media industry was probably 2D morphing. The process involves taking two images, say, two faces or a human face and a chimpanzee's, and marking out corresponding points on the two pictures - the eyes, nostrils, hairline, etc. Then the morphing software uses these points as a reference to blend one image into the other, accomplishing the transformation seamlessly and without tearing. One feature of morphing two faces together is that at all stages in between each image looks like a separate human face rather than something incomplete. A persuasive naturalness is maintained at all times. Although the morphing transformation is so smooth that it can look quite alarming, it is also so smooth and continuous that it does not lead us on to any other way of perceiving or interpreting the imagery other than that of noting the perfect conflation of the two images. An early example of how this was used is in a pop promo for Michael Jackson called *Black White* produced in 1992 with effects by Pacific Data Images [Landis⁶⁶]. In this video we see a long succession of portraits of young people from a wide variety of racial groups. As they morph from one to another the actors and actresses smile and pose as if they are passing some kind of joyous experience between each other. The sequence is so long and so even and rhythmic that it is impossible to feel any reason to think further about the event you are witnessing. It is perfectly unified and self contained despite the fact that the transformation from person to person is a factual impossibility. The morphing transformation itself is completely neutral, it does not present any structural features outside of the simple progression from one face to another. It in no way respects any

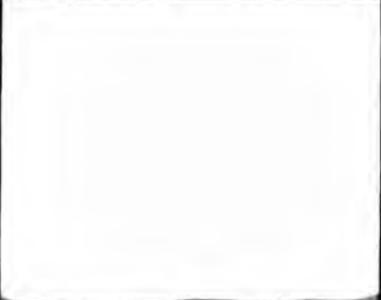
⁶⁶ John Landis (dir.), *Black White*, MJJ Productions, 1992. Digital effects by Pacific Data Images.

cultural or social differences between the different races that are represented, in fact even the most obvious reminders of their ethnicity are erased by shooting them head and shoulders without any trace of clothing or accessories. It seems to be creating such a state of uncontradicted affirmation that all differences are reduced to a seamless homogeneity. Under these conditions of visual and representational naturalness a dialectical tension is impossible. Even though each of the people depicted are obviously racially different there are no ways left in which their differences can be articulated in representational terms. This morphing is a radically non-dialectical digital transformation.

A naturalistic representation is one that is taken for granted, not questioned, continuous in the sense of being a whole autonomous unity existing fully formed without need for explanation. It serves to confirm what we already believe and we fetishise its qualities as being intrinsic rather than derived. A naturalistic transformation such as the morphing example above makes these qualities explicit on the level of visual dynamics and can be successful to the extent that they can override conflicts on the level of the symbolic. If the faces in the Michael Jackson video had been montaged together even using continuity editing then the viewer's attention would have been concentrated more on the physical features of the people depicted. But the digital transformation with its powers of defamiliarisation concentrates all our perceptual powers onto the transformation itself. If this transformation is in itself "naturalistic" and has no other signifying function, then further chances of critical or dialectical perception are greatly reduced as the visual effect of such a transformation is to erase conflict. This is not due to digital transformations in general, even if they are visually "strange", but to the particular visual dynamics that some of them employ and their resultant difficulty in embodying external ideational references. The neutral morph tells us nothing about the elements that it transforms and is therefore severely limited in its ability to signify because of its visual erasure of inconsistencies and differences.



James Cameron (dir.), *Terminator 2 : Judgement Day*, 35mm film, 1991.



Sometimes we see an unusual visual effect which looks very compelling but appears "unnatural". This is often the case with a computer generated form like the liquid robot in *Terminator 2* which moves so smoothly and perfectly that we cannot believe it is part of our everyday imperfect world [Cameron ⁸⁷]. In this case we could still argue that the effect is "naturalistic" in the previously defined sense in which it appears to be an autonomously functioning entity, but "unnatural" in the sense in which it is flawless. This flawlessness alerts us to its artificiality and it could even "distance" us in Brecht's sense to some degree (as an alien that alienates us), but unless it is capable of some further signifying function then its power to unsettle us remains arbitrary and restricted. It may be argued that this is better than appearing both autonomous *and* natural but its defamiliarising effect remains at a formal level. We will return to this topic later when we consider some of Eisenstein's last thoughts about the power of omnipotent forms.

The transformation constructed for the introductory sequence in *LMX Spiral* is able to perform a dialectical function due to the fact that it arrests attention through the novelty of its form yet retains a signifying function in relation to what is depicted. Its ability to perform this signifying function rests on the fact that the visual and logical structure of the transformation itself has some iconic power. The iconic sign signifies through resemblance, through mimesis, and is one component in the constitution of an emblem as being a mixed sign (another component being the symbolic) [Wollen ⁸⁸]. In this case the animation of an architectural construction appears both to be the result of a man made fabrication and to arise from an ambiguous natural phenomenon – the spiral tornado. This transformation has a dialectical effect because it combines both an image of historical progress in urban construction and an image of architectural stylistics in the fashion aesthetics of the façade. Fashion, as Benjamin describes in the Arcades project, is the commodified "measure of time", it is "transiency without progress", the new-as-always-the-same, the "deadly repetitiveness of time that is part of the archaic, mythic imagery of Hell" [Buck-Morss ⁸⁹]. What is singular about the postmodern architectural style of the eighties was the way in which it combined references to classical motifs of the past at the same time that it became emblematic of the new spirit of innovation. On the one hand it suggested the end of historical cultural progress by refusing to discard the styles of previous eras as though they had been superseded and instead pastiching them into a modern context, and on the other hand it borrowed the cultural forms of the past in a way that could suggest that the monumental or even utopian aspirations of the past were about to be consummated. A dialectic was at work in the aesthetic of postmodernism itself, but one which might need some help in order to make it

⁸⁷ James Cameron (dir.), *Terminator 2: Judgement Day*, 1991.

⁸⁸ Peter Wollen "Semiology of the Cinema". In *Signs and Meaning in the Cinema*, Thames and Hudson/BFI, London, 1969. p 149.

⁸⁹ *ibid*, p 96-97.

become apparent. The postmodern style of heroic pastiche could become either an image of utopia in which history is finally transcended or a surrender to the recycling of taste described as the eternal recurrence of the time of Hell. Fashion no longer requires the forgetting of the past but its undermining of the myth of progress has not always retained the desire for utopian change.

As mentioned above, digital transformations can perform an iconic signifying role or else risk the fate of becoming completely fetishised. Both are functions of its visual virtuosity. The build up of the façades of the opening sequence allegorise a historical transition by constructing a visual relation between the old and the new architectural emblems that attributes this transition to a tension between progress and fashion. In *LMX Spiral* these transitions are usually a result of the tornado-like spiral emblem that punctuates each scene. This is the spiral of London Market eXcess - the Lloyds insurance term that describes the practice of repeatedly reinsuring the same policy until the premium left for pay outs is reduced to a bare minimum. This practice assumes that the chance of a large number of expensive accidents and claims will be small - it is a gamble with fate, and one which many people had lost by the end of the eighties. It is therefore also representative of the whole fever of risk-taking at the time in which banks lent huge sums to businessmen who allowed themselves to believe that the boom would always continue just long enough for their company to prosper. It is representative of the small investors who believed that the economic future was so certain that it could support a growing return for a growing number of people. According to Benjamin there is "a particular structure of fate that can be recognised only in money; and a particular structure of money that is recognised only in fate" [Buck-Morss⁹⁰]. The spiral emblem in the film sucks up financial resources into its vortex and uses them to feed its insatiable growth. As the spiral increases in height, it becomes increasingly difficult for it to support its own weight or to retain its balance. As it gets taller it becomes more and more vulnerable to the chaotic conditions that surround it. And just as the historical allegory demands, its decay is only a matter of time. The conditions that hasten the collapse of the spiral are represented by the changing weather, sometimes forecastable but in fact truly "natural" in the sense of the ultimately unpredictable.

So these transformations – façades, spirals and weather - are emblems for the social and cultural conditions of recent historical change. These conditions can and in fact should be interpreted through the allegory in philosophical terms with the aid of dialectics, charting the subjective experience of time, the myth of progress, the new nature of material culture, the economy of risk and fate. These emblematic transformations are able to meaningfully articulate

⁹⁰ *ibid*, p 103.



other emblems through the visual dynamics of their logical structure. They have iconic signifying powers through some structural analogy or isomorphism with the forces that play themselves out in history. But they are not rationally illustrative of these forces - that would be to make the same pseudo-scientific mistake that Eisenstein warned about when considering the role of physiognomy. They rather serve to set into motion various philosophical categories of perception, to set them into dialectical tension such that their relations are revealed. These categories are not objects which can be verified or external forces that can be tested, but are that which orders the perception and understanding of these objects and forces and are therefore even more real and consequential. The verification of their structural analogy can only take place at the level of dialectics and meaning. The epistemological advantage of the allegory is that in such a spatial model all these objects can be arranged and rearranged simultaneously thereby overcoming any particular sequential or casual connections and allowing the many possible configurations of forces between them to be apprehended and tested. As Benjamin argued in the *Trauerspiel*, truth can only be represented in the constellation of its contradictory extremes.

Questions still remain to be asked as to how digital transformations can best be constructed to articulate emblems or become emblematic and avoid the dead end of fetishisation. A visually strident effect does not necessarily preclude a signifying function or a dialectical one. A central difference of digital transformations as opposed to other transformations is that their construction is not purely visual but also often involves the design of a logical process - at the level of software encoding, the internal relations of the elements in the database, even the design of the applications interface. We might ask firstly whether these underlying logical processes are capable of embodying allegorical meaning, perhaps by becoming like a commodification of the processes of human thought. Secondly, if this is possible then whether this level of allegorisation can be expressed and apprehended visually for the purposes of moving image making, or in fact expressed in any directly perceptible way at all.

Part 3

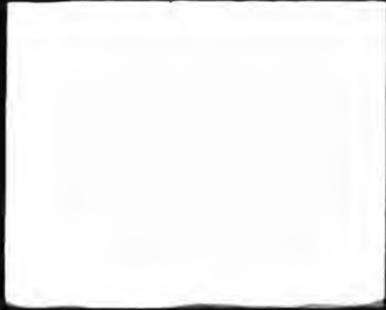
Knowledge Hybridisation in Digital Arts Practice

Knowledge Hybridisation

One of the main differences between digital and non-digital media is the extended range and depth of knowledge and skills that are necessary for the producer to acquire. It includes a familiarity with a variety of forms of mathematical and scientific representation and modelling and with the sets of appropriate transformations that can be applied to them. This chapter is an attempt to open up the new issues that arise when the theory of allegory is extended to try to take account of the influence of logical processing and computer modelling on the creative process.

Every beginner is encouraged to learn the difference between a bit-mapped and a vector representation of an image. A bit-mapped image is what we might call an empirical representation because it stores an image on an explicit pixel by pixel basis. A vector based image is a structural representation because it stores images (principally drawings) using procedural mathematical descriptions like line segments and co-ordinates, shapes and fills. Knowledge of the different properties of the two becomes important when we want to perform certain operations like zooming into a picture and discovering that the bit-map has become all fuzzy. Vector images are limited in terms of the continuity of the visual elements they can represent without becoming large and unwieldy but can represent diagrams and graphics very efficiently. The size of the representation becomes an issue if we want to move it around the Internet for instance because we know that large data files are impractical to transmit. (Significantly, if we don't know this then we may still try to transmit huge files and accept that the very long up/download times are just naturally "the way things are").

The above example ultimately draws on areas of scientific knowledge like sampling theory and parts of number theory, mathematical techniques which deal with how objects and operations are represented (for mathematics is the language of science as every schoolboy is taught). Scientific theories which are more directly related to a real world referent are also found in digital media, the most common probably being in the field of 3D computer modelling and animation. Such



systems normally include many different modelling types, from physically based modelling and animation to parametric patches and polygon based objects to texture modelling. Some of these have been specifically developed for computer graphics applications, some are derived from many different disciplines. Not all of these types of model are appropriate for all types of objects. Some texturing functions make very convincing images of natural phenomena but can be awkward to animate. Some physical models are easy to animate but unpredictable in their results. A familiarity with the characteristics of these techniques is necessary for the artist or designer to work effectively. It constitutes a huge expansion of the traditional fields of artistic knowledge beyond anatomy or colour theory (which are rarely actively taught in art schools now anyway). Does this new field of knowledge influence artistic practice beyond the purely instrumental, and should it?

We will consider whether this extended knowledge and skill can enable cultural producers in general to acquire additional critical insights capable of motivating further action outside of these particular confines. To do this we first need to examine the difference between the traditional notion of knowledge that explains through general principles and leads to intellectual creativity, and information which is highly contingent on technical specifications. These two forms are related to the distinction between knowledge as understanding and as practical skill and operate in ways that have distinct repercussions in media practice. Skill is knowledge "how-to" rather than knowledge "of". Its role in cultural practice depends on a practical ability to articulate the structural characteristics of a medium without knowing the reasons for those characteristics. It is not necessarily limited to the precise fashioning of a representational mode in the expression of an idea. It need not be limited to the use of a medium as a set of tools with predefined functions but in its most creative form could involve the exploration of new dynamic possibilities of the medium. Its limiting condition is reached when a medium can no longer be stretched to new requirements through practical experience alone without the knowledge that can reveal new levels of untried connections, functions and augmentations.

On the face of it, knowledge as understanding in the domain of 3D computer animation would involve, for instance, knowing that a parametric patch model of a bouncing ball would deform a striped surface texture correctly when it bounced because it defines the surface as a continuous mathematical object which can support texture co-ordinates. Knowledge as skill would just involve remembering to avoid using a polygonal ball for such an application because it wouldn't look right. But in practice things are much more complicated. For many modern software packages now create separate sets of texture co-ordinates associated with any object type you choose, making many of the specific mathematical properties of objects irrelevant. It is only some

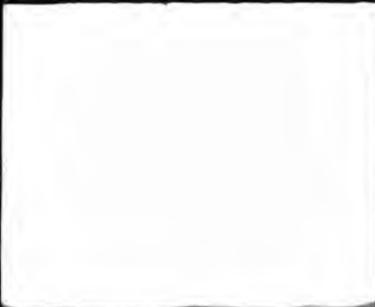


of the "high-end" software systems which now tend to stick rigorously to the native mathematical properties of object types. These systems are intended to be for "experts" who are already familiar with the different mathematical properties of objects and choose them accordingly. The paradoxical implication is that the "lower end" systems are more sophisticated through their increased flexibility.

An extreme but increasingly common example of this manufactured eradication of the disjunction between generalised knowledge and contingent skills is demonstrated in the difficulty that new art students have in separating the two. Sometimes if a student is asked to explain how a certain effect or operation is accomplished, instead of referring to the underlying digital processes they simply describe the necessary series of software commands relevant to a particular package. A computer model is rendered not by a complex process of projecting it into screen co-ordinates, clipping, scanning and shading but by selecting a screen resolution, choosing a filename and pressing the RENDER button. It is not even clear how this inability to grasp the structural operating principles of new media will actually effect our understanding. For how useful are the differences between a parametric patch and a polygonal model if their orthodox mathematical definition can always be augmented to suit current requirements?

Many equivalent proprietary software packages have developed their own terminology and procedures for performing similar tasks. Without knowing the underlying mathematical models or operations that these procedures have in common it becomes increasingly difficult to compare different packages and form a dialogue between their different users. It is a similar effect to the way Xerox has become synonymous with photocopying. Without knowing what they refer to, it would be difficult to realise that what is called Meta-Balls in one system is the same as Clay Studio in another. The paradox is that these names were probably chosen by the software designers in order to make their functions easier for the user to understand than if they had used their correct mathematical description of "solid density functions". The only way to determine their similarities would be to learn several software systems - often a daunting task.

It is possible to trace the epistemological compromising of computer models through these ambiguities in their description down to the theoretical level of their definition when software is designed and scientific knowledge is appropriated. Take the example again of 3D models developed for computer graphics and animation applications. In a hand book for a SIGGRAPH '87 conference course entitled *The Modelling of Natural Phenomena* the scientist Alain Fournier



provides a practical overview of current models in use [Fournier⁹¹]. He begins at the most theoretical level - a physically based model in which the properties of a phenomenon are derived from the equations that describe its most basic properties as developed in the relevant scientific disciplines. The advantages of these models are that they are complex enough to accurately generate most of the important features of a phenomenon and that they usually include a time component built in which allows for easy animation or "dynamic simulation". A good example are the equations used to describe fluid dynamics. These standard formulae like the Navier-Stokes equations can be used to model the flow of liquids and some can be used for a variety of fluid phenomena like clouds, smoke and even fire.

Next come the "structural" models in which only the internal skeleton of the object is represented. The external appearance of the object has to be interpreted by "clothing" it in some geometry or rendering characteristics to make it visible. Many growth models function this way by reproducing the branching patterns of trees and plants and can be based on botanical research. The trunks and leaves then have to be separately applied to this structure to complete it. Morphological models are only concerned with the outward shape of the object. These can be generated procedurally like the spiral of a shell or just by manually deforming a parametric patch to make a car bonnet. Most 3D models fall into this category. Impressionistic models have no connection to a physical phenomena, they only attempt to mimic their visual qualities. Usually they involve taking a simple geometric primitive and texturing it with a pattern to resemble a cloud for instance. Finally we have empirical models in which an instance of the real object is digitised directly. The most common application is in digitising a human face or some similar object which is so idiomatic that a more general structure would not be sufficient. An odd man out in Fournier's list are what he describes as "self-models" - that is mathematical objects like fractals that are used to model the appearance of phenomena as diverse as clouds, terrain and marble but whose theoretical connection to the nature of the phenomena themselves are controversial.

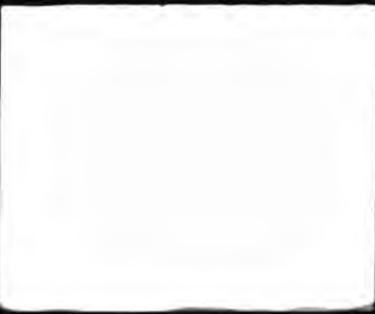
Although this still covers all the main types of 3D model used in computer graphics today, an examination of how they are used quickly reveals that their distinctions are mainly a convenience. The model type with the greatest claim to an epistemological status would seem to be the physically based model and so presumably its use would bring the artist closest to an insight into scientific knowledge. But to take the example of using the equations of fluid dynamics to model water surfaces, we can immediately see how the process of mathematical modelling

⁹¹ Alan Fournier, "Prolegomenon", *The Modeling of Natural Phenomena*, SIGGRAPH '87. ACM Press, New York.

becomes a process of mathematical design. To begin with, the Navier-Stokes equations, as implemented in a SGGGRAPH '90 paper by Kass and Miller, limit the shape of a liquid surface to a range of height fields [Kass and Miller⁹²]. In this approach a water surface is modelled as a grid of points and animated as though moving them up and down in columns. Lateral motion, such as that which results in waves breaking and splashing is excluded for reasons of simplification, as well as vertical motion of the water up and down the column, but it is argued that if the wave motion is not too violent the resulting model should still be accurate. There are also simplifications to the equations such as removing some terms and in linear interpolation methods of calculation. The continuous differential equations that result are then solved by sampling them discretely, another approximation technique. At the point of the final form of the equations it is discovered that they can be rewritten so that one term can be altered to introduce a "damping" effect to control the viscosity of the resulting liquid - a "realistic" effect quite foreign to the original physical model. Also, because of previous approximations, the total volume of water is not guaranteed to remain constant, so after each frame in the animation the program has to calculate the water volume for the whole surface and redistribute any difference it finds from the previous frame.

When the algorithm is incorporated into an existing animation package, some final decisions are made as to its use. An algorithm that works by dynamic simulation usually generates a water surface for every frame in the animation by extrapolating from its previous state and taking into account any changes in its vicinity such as rain drops or encountering an obstacle. Strictly speaking, this would involve it generating a new 3D surface at each frame, which unless there was a convenient method for deleting the previous one would quickly use up all available memory and/or disk space. Because of this most implementations work by outputting a 3D mesh every five or ten frames and then interpolating or "morphing" between them. This means that running the simulation will typically result in a series of 3D surfaces. These surfaces can now be edited just like any other 3D mesh either by hand or using any of the tools normally available. It is sometimes a problem that with dynamic simulations the results of the animation can be unpredictable due to the high degree of automation and lack of opportunity for user input - the water waves may run off in an unexpected direction off screen and out of sight for example. By being able to edit the individual meshes by hand some extra control can be exercised - some waves could be edited out to prevent unwanted motions or details added to suggest splashing effects not modelled by the algorithm. And finally when the waves are rendered many possibilities are available to apply surface properties and texturing effects. It is not uncommon to

⁹² Michael Kass and Gavin Miller, "Rapid Stable Fluid Dynamics for Computer Graphics". In: *Computer Graphics*, Vol 24, no 4, August 1990. ACM Press, New York.



film subtle lighting effects like caustics and texture map them onto the surface or sea bed for example, or map variations in the transparency of the surface to suggest dirt or floating organic material or map indentations on to the surface to copy the little ripples caused by the wind. These "morphological", "empirical" and "impressionist" modelling techniques complete a range of approaches that are typically combined in repeated succession until the required result is achieved.

At each stage in this process of refinement a decision has to be made as to whether the deviations from the original formula will retain the characteristics of the phenomenon that are most relevant to the application. As well as this, there are occasions when changing the equations result in new terms which allow certain new features to be defined that improve the appearance or controllability of the simulation. The physically based model becomes increasingly limited to the cruder appearance of the water surface, becomes augmented by terms that reflect the behaviour of liquids that are required in this instance, and has to be continually managed from frame to frame to ensure that the necessary motion properties are preserved. The final form of the algorithm can include many more modifications of this type that help to improve its suitability for various animation applications and integration into the structure of standard animation systems. Even if an accurate "scientific" realism is the goal, perhaps for an architectural simulation, the limitations of the underlying physical model may still be best corrected by directly editing the resulting animation by hand. It has become a patchwork of scientific theory, mathematical techniques, practical logistics and aesthetic standards.

The epistemological status of the resulting algorithm is clearly compromised. But its extension into artistic applications can involve further substantial shifts through the development of its use as a signifying device. The form of this algorithm requires the user to provide two sets of data for its initial starting conditions. These are the shape of the water surface and the shape of the water bed. They can be created easily by any 3D modelling program and Kass and Miller's paper demonstrates how their technique was also designed to allow interactive input for creating water droplets and disturbances. By altering the implementation of the algorithm instead of the input being in the form of a 3D model we can provide the water surface and ground in terms of two greyscale images from which the height fields could be extracted by interpreting the intensity of the pixels. The resulting water surface could also be outputted in terms of a series of images instead of 3D surfaces. In this way the 3D modelling program could be turned into a image processing program and used to "wash" images or animations around and over each other.

This form of the program was written by me several years ago for the film project *Heliocentrum* for a scene in which an emblematic head model released its pent up energy dispersing it over the landscape [Wright⁸³]. It was essentially a way of transforming an object from a solid state to a liquid state. This transformation was not the purpose of the original algorithm and would not have formed part of the original research brief. There was no reason for the computer scientists to extend the algorithm in this direction as it did not correspond to any physical phenomenon. Therefore scientifically it has no legitimacy but without my knowledge of the basic mathematical functioning of the algorithm I would not have known that it was possible to repurpose it in this way.

This new program acquires a peculiar status as it retains visual qualities that make its relation to physical theory quite compelling. The algorithm still accurately models fluid dynamics properties such as the reflection of waves off obstacles and taking account of the depth of the liquid. When the resultant animations are viewed it becomes clear that the animation has been generated through some automated logical process rather than painstakingly keyframed by hand. The interactions of the waves, water bed and other obstacles are far too complex and consistent for any other explanation, apart from the fact that it is extremely unlikely that anyone would have been able to devote so much time to animating so accurately something which might perhaps be used only as a background to the main action. To the extent that it recalls aspects of the behaviour of liquids and that it does not appear hand animated, the animation seems "natural" and realistic. However, when the program is used to wash away a solid object like a human head, or rain drops are made to fall in a precise pattern, the location of the "realistic" effect is displaced from the strictly scientific level to the aesthetic. It is moved to the point between knowledge and meaning, to the point between logical and sensual levels of perception in Eisenstein's terms.

When an effect is realistic but not logically possible then we have a similar case to the last chapter when we looked at the use of digital transformations that were visually realistic but unnatural. In the case of the effect intended for *Heliocentrum* the transformation of the solid head into molten liquid comes as the climax to a scene in which the head is struggling to contain a multitude of forces revolting inside it. When the liquefying effect suddenly occurs it should come as a shock to the viewer to see the head wash away, and all the more so in that the dynamics of the animation are so realistic. This transformation is intended to signify the result of a struggle between centralising and decentralising social forces and could also be said to create a dialectical tension by its allegorising the relationship through solid and liquid forms. The

⁸³ Richard Wright, *Fluids* (software), Soft Future Productions, 1994.

difference from the previous example of the *LMX Spiral* façade sequence would be the degree to which the fluid dynamic simulation exhibits a greater degree of "realism", but once again its "unnatural" use in an impossible situation and its signifying functions in the context of the film can serve to increase the tension between these different levels of meaning rather than to become the object of an overall fascination.

In digital media algorithms will typically combine theories and techniques drawn from many different disciplines in a hybridisation of knowledge bases. The epistemological status of these algorithms is embedded within a wider context of technological limitations, commercial priorities, designer aesthetics and, in the case of my own programming, its application to specific signifying functions. Under these conditions any aspirations towards modelling natural phenomena become subject to operational criteria. The basic scientific theories of natural processes become so severely compromised that their legitimacy can only be ascertained by their behavioural characteristics or performance, because of both the successive simplification and alteration of the standard formulae and their inappropriate level of descriptive analysis in the first place. The algorithms that replace them rely more on calibration than veracity to achieve their effects. Their legitimacy depends only on their *performative* ability to produce the required results without regard to their theoretical accuracy at the level of explanatory power [Lyotard ⁹⁴]



Richard Wright, *Fractal Cloud*, digital image, 1994.

A good example of the new kind of mathematical modelling which has found widespread application in digital media from image synthesis to signal sampling is the field of fractals. The basic techniques of recursion, self-similarity and stochastics have, in the modelling of natural phenomena for instance, produced imagery resembling a diverse range from trees and skies to marble and rust. The theory of fractals posits common principles that govern the outward

⁹⁴ Jean Francois Lyotard, *The Postmodern Condition : A Report on Knowledge*, Manchester University Press, Manchester, 1984.

appearance of natural forms, though these principles may not be applicable to a deep structural level [Wright ⁹⁵].

The fact that these computer models have become distanced from physical theory means that in some sense their original value as scientific knowledge has been lost. At the same time their qualities of visual realism may still be high, in fact it is paradoxically only through their simplification and approximation that it becomes practical to use them for realistic imaging in the first place. This process of loss of intrinsic value should be reminiscent of the process of emblematisation whereby objects lose their original meanings or use and become able to take on other signifying functions. It is also similar to the specific way in which Benjamin describes how objects become emblems through commodification by losing their use value to the contingencies of exchange value. For the development of computer models and algorithms are also driven by the need to turn scientific theory into commodities that can be sold to cultural users in software systems. As such they may be able to take on new meanings when they are introduced into a new realm of cultural circulation in the form of visual imagery.

Algorithms that mimic or simulate phenomena such as artificial intelligence programs can still perform useful functions without necessarily being based on any structural knowledge of the brain and its processes. One example is the application of artificial intelligence techniques to the animation of animals that move in large groups like flocks of birds and schools of fish. In 1987 Craig Reynolds of the Symbolics computer animation company wrote a system for modeling this behavior and in his research paper presentation included animation of simple objects like triangles that appeared to swoop and congregate just like birds [Reynolds ⁹⁶]. By treating animals as information processing systems Reynolds was able to show how a few simple rules of interaction not based on brain functioning could give rise to a wide range of apparent natural behavior. This questions our definition of intelligence as a complex phenomenon and how it can be reproduced and perceived - as either modeled or mimicked. The loosening of this theoretical link between the operation of a computer model and its epistemological referent may not make it any less effective or valid as knowledge, but may result in different forms of human understanding [Wright ⁹⁷]. The characteristics of what we might call these "allegorical" forms of knowledge that are based on mimicry rather than abstraction, simulation rather than

⁹⁵ Richard Wright, "Towards a Poetics of Knowledge". In: *Third Annual New York Digital Salon, Leonardo*, Vol 28, no. 5, 1995. p 396. Pergamon Press, Oxford and New York.

⁹⁶ Craig Reynolds, "Flocks, Herds and Schools. A Distributed Behavioral Model" *SIGGRAPH '87 Proceedings*, ACM Press, New York, 1987.

⁹⁷ Richard Wright, "Computer Graphics as Allegorical Knowledge: Electronic Imagery in the Sciences", *SIGGRAPH '90, Digital Image - Digital Cinema, Leonardo*, 1990. Pergamon Press, Oxford and New York.

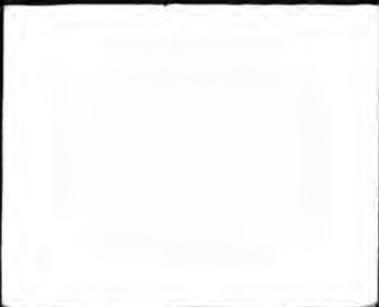
representation, would form the start of a separate enquiry into the epistemology of modern science and will not be pursued further here.

Just as Benjamin tried to construct an Ur-history of commodities to show the myth of historical progress, it might one day be possible to construct an Ur-history of software algorithms to reveal the myth of technological and scientific progress. But Benjamin's project depended on commodities being also able to evoke the utopian desires, ideological baggage and social relations of their time in visible form in order to construct an allegorical redemption. The appropriation of scientific models for cultural purposes introduces an "unnatural" element into their use which can have the shock effect of emphasising their basic formal properties rather than of confirming their veracity. But in order for computer algorithms to truly become emblematic then their underlying ideological structure must become visually or sensibly apparent. Is there a way of embedding this knowledge in visual form that will allow it to be directly apprehended? Would the effect of such emblematic knowledge fragments be to explode the myth of progress towards ultimate truth and reveal the utopian aspirations behind the scientific endeavour? Or perhaps it might suggest new ways in which the pursuit of knowledge and meaning could be linked through our desire for redemption. The result of a leap into Messianic time for science would seem to imply that we already possess enough knowledge for human fulfilment here and now. But we must remember that knowledge hybridisation is not the same as allegorisation - perhaps science will instead prove to be the limiting case for Benjamin's allegory. In this current study we will have to restrict ourselves to questions of how the different levels of logical and visual knowledge and perception interact in the production and viewing of digital media and whether the conceptual frame work of the allegory can help us to structure their relationship.

Technoliteracy

If there is a challenge for cultural critics, it might be the commitment to making our knowledge about technoculture into something like a hacker's knowledge, capable of penetrating existing systems of rationality that might otherwise be seen as infallible;...Technoliteracy, for us, is the challenge to make a historical opportunity out of a historical necessity. [Ross ⁹⁸]

⁹⁸Andrew Ross, "Hacking Away at the Counterculture". In: *Strange Weather*, Verso, London and New York, 1991. pp 100.



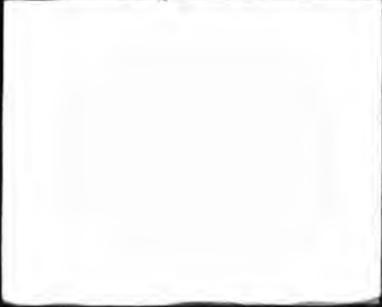
Technoliteracy for cultural workers implies a level of knowledge that enables one to understand that the landscape of digital media has arisen as a result of certain scientific, technological, commercial and cultural forces and as such is capable of taking a number of alternative forms. It could involve a "hard" theoretical knowledge of data processing and computer programming or "soft" operational skills of how to use existing systems for purposes for which they were not originally intended (and, of course, all the degrees in between).

The hard technoliterate are able to appreciate the hybridisation of knowledge that occurs in digital media at a primary coding stage. This knitting together of scientific physical theories, mathematical techniques and representational schemata might be thought of as a montaging method primarily encoded into logical space in terms of software and secondarily into perceptual space in terms of the cultural forms it takes. Like classical montage theory, for those who can access the primary level it produces ruptures in the continuity of knowledge systems, ripping functions out of their allotted place in scientific discourse and assigning them a new place in processing data from initial inputs to final presentation. The understanding of this process as an essentially contingent one arguably produces resistance to the "naturalisation" of established knowledge as unified and inevitable and avoids its resultant fetishisation.

Already the conception of software as being constructed out of different modules has had an impact on the writing of code as evidenced by the growth of "open source" software. This is the social form of montage in which an often large number of different programmers combine (in no particular discipline) to each write different components, test and debug each other's code [Raymond ⁹⁹]. This recognition of software's patchwork structure would also make it easier to envisage the alteration of existing software. But recognition of the original epistemological references of various logical functions could also provide more insights into how a software system could be repurposed. Otherwise the process would become more like the arbitrary form of montage in which elements are randomly piled up in the hope that something interesting will emerge – much less likely in the world of sensitive logical processes.

The construction of an algorithm by means of logical function and procedures is of course at a different level of perception than the assemblage of pictorial elements in a montage construction. Because of its nature as a formal language, the flow of data between different logical functions in the software must be continuous and consistent. Processing implies the continuous transformation of logically non-contradictory data. Any epistemological discontinuities between

⁹⁹ Eric S. Raymond, *The Cathedral and the Bazaar*, Linux Kongress '97.
<http://www.tuxedo.org/~esr/writings/cathedral-bazaar/>



different mathematical representations and operations are only certain to be perceptible at the level of software engineering. At the level of the software's visible output the only conflicts likely to be apparent are those between the autonomous consistency of the image's realistic appearance and its improbable depiction of fantastic subjects. Therefore it is difficult to conceive of dialectical montage at the logical level – if there were conflicts or incompatibilities here then the software just wouldn't work. It may still be possible to conceive of a dialectical montage at the epistemological level by being aware of the original real world referents of the theories that have been implemented. At the level of logical construction and encoding though, there has to be more of a blending together of functions, like a system of connected nodes. It may be here that the allegory first meets a different conceptualisation – the network, and it is also here that our discussion of allegory must reach a natural limit.

For the soft technoliterate hybridisation could mean resistance to the assumption that each software system provides a one stop solution. It is resistance to the feeling amongst some beginners that the animation system they are using defines in itself the only form that animation can take on the computer, when the product is identified with the practice. Multi-system literacy provides the perspective that reveals that each package overlaps but is not congruent to the others and that instead each one is biased towards certain areas of application, certain methodologies and certain production environments. The free passage of data in and out of each package and into another becomes as important as the functionality within any single one. But more important than this is the ability to realise that the functions within a system can be used for purposes for which they were not originally designed, when the functionality is no longer identified with the practice. In the examples in the tutorial manuals that come with a package, in the arrangement of functions into menu structures that organise their use and in the very naming of functions themselves certain forms of practice are assumed and reinforced. Technoliteracy resists this preordering of possibilities and encourages thinking outside of the given parameters and patterns of operation by recalling the reality of their formal and contingent nature.

Structural - Algorithmic - Digital Allegory

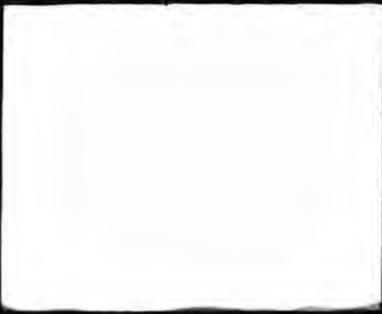
Two films I made in 1996 and 1997 demonstrated some of the implications of the influence of logical processing on visual levels of creativity. They were both made as collaborations with Martyn Pick, a hand animator with a traditional animation background, as experiments in combining traditional and digital forms and methods - *Gridlock* and *Play to Win*.

In hand animation the creative activity is nearly always performed at a visual level. Every mark that is made by pencil on paper appears as a result of direct hand to eye co-ordination and the immediacy of visual feedback means there is not so much space or need for careful premeditated construction and planning. You make your mark and keep changing it until it looks right. There are no other criteria to refer to. Systems like perspective and anatomy are also normally used by internalising them until they are at the point at which they do not require conscious determinations to apply them but default again to visual corrections. In animation too, timing structures for effects like accelerations and decelerations are often internalised and used in "straight ahead" animating by judging timing intervals frame by frame purely on the fly.

In contrast, in 3D computer animation reference is constantly being made to 3D data structures and their interrelationships as well as the purely visual qualities of the objects as they appear on the screen. If one is trying to place a ball on a table one can adjust the 3D positions of the two objects so that they are touching in space regardless of the visual impression given by the final rendered image. The laws of perspective are applied automatically to all objects in the scene and to the same standard of accuracy regardless of whether the significant visual elements end up in the best relationship to each other in the 2D space of the screen. That is a secondary effect. In 3D computer animation you are working at the level of what you know is the case in 3D space as well as the perceptual space of the rendered image. When animating an object it may be placed on a motion path that accurately describes its trajectory even though it may be moving too fast for this to be noticeable. A traditional animator would concentrate on the position and the general shape of the object at each individual frame. Because computer animation often works by interpolating the position of an object on the frames between two extremes or keyframes, there is a pressure to think of motion as being defined by a beginning and an end and not to worry about the character of the motion in between. This tends to result in animation where the object is only animated by the simplest of transformations that will move it from the one key position to the next.



Martyn Pick and Richard Wright, *Gridlock*, Beta SP, 1997.



The first film we produced was *Gridlock* [Pick and Wright ¹⁰⁰]. We decided that Martyn would take the "lead" by providing me with hand drawn sequences that I would match. This way of working has become common in the animation industry where the motion is designed by a traditional animator and handed over to the computer animation facility as a "pencil test" for them to copy. Martyn's intention was to animate a series of vigorous graffiti style figures struggling with a computer generated mesh or cage. This was intended to bring together the spontaneity of traditional animation and the poise and control of computer animation, to create a tension between the grid and the creatures and their interaction. One of the first things I discovered was that trying to find the extremes of motion or keyframes in Martyn's drawings was counterproductive because they were moving around too erratically. I found that I had to go back and almost frame by frame adjust the position and orientation of my grids, then play back the results in wireframe mode to make sure the motion was still discernible in character. I also found that standard perspective projection was not giving me the dramatic spatial distortions necessary to match Martyn's figures. In effect the perspective was constantly changing from frame to frame and sometimes within frames - perspective was simply not an appropriate spatial transformation. Instead I used all sorts of scaling and deformation transformations to match the motion by eye as well as to match the distortions due to the collisions and reactions. It was also clear that in Martyn's drawings the actual physical structure of his creatures was not constant, with limbs appearing and disappearing and whole figures merging into and out of each other. This was, of course, because he was not referring to any underlying physical structure but purely to the visual dynamics his creatures could create across the screen of the frame.

The discipline of matching 3D computer animation to hand animation meant that by the end of the production I was concentrating very much on the visual qualities of each frame with regard to their motion and very little to mathematically defined properties of each object. Sometimes completely different objects would have to be inserted into frames in which particularly violent events occurred. The pressure of this specifically visual approach was ripping my objects out of their space of mathematically continuous functions and reordering them according to other logics. Once again it seemed similar to a montaging effect in which a previously arranged set of objects were broken up and rearranged into a new constellation. Working in this way I could directly experience a "dialectical" tension between exploiting the mathematically defined properties of objects and their visual properties.

¹⁰⁰ Martyn Pick and Richard Wright, *Gridlock*, Beta SP, 1997.



Richard Wright and Martyn Pick, *Play to Win*, Beta SP, 1997.

By the time we started on our next film *Play to Win* I felt that I had learnt enough to be able to take more of a lead [Wright and Pick ¹⁰¹]. I produced an animatic "drawn" on an electronic paint system called Fractal Painter and began work directly on designing the shots in 3D which Martyn would now add his hand animated characters to. One difference with the previous project was that this footage was going to be for a commission for an interactive TV programme with an approaching deadline and a low budget to keep to. We decided that because of this and as a development from our previous film we would keep the style very graphic and raw. As I began working on the piece I realised that I only needed to roughly suggest what the objects were that I was representing with a few recognisable features and then concentrate more on their animation. This developed into a kind of 3D "sketching" which excluded all modelling details and surface treatments.

In my efforts to continue reducing the amount of 3D work involved in deference to the final visual effect I began to experiment more with the large range of plug-in special effects that now come with most animation packages designed to provide quick methods of producing commonly needed effects. I found that as I tried out each one they would often form the basis of a visual idea that I could use to characterise the look and motion of each shot. These included effects like randomly perturbing models to roughen them, melting functions, highlight filters, "crumple" filters, and texturing effects that could be used to "scratch away" the surface of an object. As I combined these together it seemed as though I was using the logic of one function to disrupt the logic of another. I found I could also manipulate standard motion editing controls like repeating extreme values on successive keyframe positions to force the mathematics to become erratic when resolving the motion curve and making the object shudder or rebound. I realised that as well as using the visual dynamics of a predesigned drawn motion study to disrupt the default logical functioning of 3D objects as in *Gridlock*, I could also use different logical functions to

interrupt each other. The hybridity of the range of mathematical techniques implemented in 3D animation meant that they could be "montaged" together and brought into conflict such that discontinuities became apparent and produced a less "natural" collision of different logical processes but a more "natural" and dynamic visual effect.

There are several areas of digital media now in which the design process involves the selection and assembling together of mathematical functions. In image synthesis there are post production packages that use "visual programming" methods for instance. This is where the source image is manipulated by connecting together icons representing image processing functions like blurring, distorting and colour balancing. In other packages like 3D Studio Max images for texturing can be generated and animated completely from scratch using sets of basic mathematical functions in the same way that sound synthesisers create complex musical sounds from generating and filtering simpler waveforms. The Materials Editor in 3D Studio Max provides a range of noise functions, fractals, periodic functions and gradient generators that can be combined and layered to an indefinite depth and also adjusted with colour correction filters, blurring and tonal modifiers. The use of these methods to design imagery means working at a partly non-visual level of logic and perception. For instance, if designing a skyscape the artist needs perhaps firstly to interpret it in terms of a series of gradients, some of which will contain cloud features generated by noise functions, to varying degrees of wispy texture detail which might be controlled by fractal turbulence, blurred and colour graded. All the time the artist is making reference to the mathematical properties of these functions in terms of the visual feedback they are receiving, building up a logical montage in parallel to the visual one.

From the artist's point of view these insights come mainly from their use of synthetic imaging production processes. For the viewer such realisations depend on how far the conflicts of and between logical functions and purely visual design are perceptible in the final form (unless they also have access to some contextual level of production information which can often be the case in special effects films). It is not inconceivable that visual sensitivity be adequate to detect these interactions, but it may well only be possible if they are given added emphasis by the deliberate intentions of the artist. In the example of *Play to Win* visual veracity is already broken down by the sparseness of the treatment and a genre form is broken down by the disjunction of the non-narrative sequence of events. This makes it much harder for the perceivable details of logical and visual dynamics to be subsumed by a film's categorisation at the macroscopic level. Its unusual formal and genre properties could help to resist its preconditioned perception and allow

¹⁰¹ Rciahrd Wright and Martyn Pick, *Play to Win*, Beta SP, 1998.

the more subtle levels of its organisation to be inferred. But *Play to Win* itself is only able to demonstrate this possibility in a very tentative form.



Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

In *LMX Spiral* there are many instances of computer animated events and transformations which are the result of carefully structured data elements and some of custom software coding. The spiral object that puts all the historical forces of the film into motion was built as a 3D computer animated effect (by myself). The spiral is designed out of a series of circular motion paths which are stacked up on top of each other to form a cylindrical shape. Then each of the objects - bank notes, credit cards and coins - are assigned a path which causes them to move around the spiral. Each path is manually offset from the others so that the objects do not all move identically. All the paths are then grouped together into one compound object. This spiral shaped object has animated object "modifier" transformations applied to it to make it bend and taper as the objects spin around so that it looks like a tornado that is being buffeted by the currents. A more flexible alternative construction method would have been, instead of grouping all the paths together, to link them from the bottom to the top in a hierarchy. In this case inverse kinematics could have been used to animate the top path of the spiral which would then have dragged all the others with it like a slinky. Unfortunately there were too many objects in the spiral for this more complex structure to have been manageable. There are many such ways that the computer can model and construct objects with particular dynamic properties. These models may be initially based on the known structure of the basic phenomenon being referenced, but can abstract or ignore various features as needed. They can also be combined with structures derived from other phenomena which may or may not lead to visually ambivalent or contradictory results. Perhaps this could form the basis of a *structural allegory* in which the algorithm is made up out of a patchwork or *montage* of different logical functions which all reference different characteristics of a phenomenon's physical structure.

The spiral looking skies that appear in the background of many scenes were generated algorithmically with software written by myself specifically for the project [Wright ¹⁰²]. The intention was to use the mathematical properties of the spiral shape to create a succession of animated backgrounds which would also serve as atmospheric patterns to pace the changes in weather. This involved combining the mathematical formulae for spirals with mathematical functions that use fractals to simulate cloud-like textures. The result might be termed an *algorithmic allegory* that in this case synthesises visual and structural properties of the spiral and of the sky. This algorithm combined the formulae to determine the shape of a spiral with the noise functions and calibration techniques necessary to form the impression of a swirling sky of clouds. This could constitute a combination of mathematical emblems into a new logical constellation. There is even a sense of creative conflict at the level of the mathematical modelling as the spiral formula defines a Euclidean geometrical object that is determined, continuous and repeatable while the cloud texturing functions use techniques which are stochastic, recursive and unpredictable. There is a visual progression as well as the backgrounds change during the film between simple spiral patterns which become "rougher" and more complex to suggest skies, clouds and eventually violent whirlpools of malevolent forces. Is there a dialectical tension at work here, operating between the determined and the indeterminable?

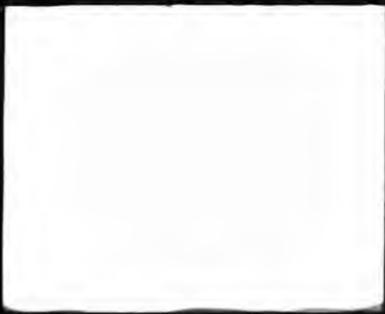


Richard Wright and Jason White, Z-Splicer demo reel, Soft Future Productions, 1996.

In 1995 I first experimented with Jason White on a new montaging technique called "Z-Splicing" which allows figures and scenes from different live action shots to pass through each other in "3D space" as though they are intangible entities [Wright ¹⁰³]. This technique is a further development of some previous methods of combining live action clips as used in the courtiers scene in the film *Heliocentrum*. In this somewhat similar technique, video clips were mapped onto planes to become "cut-outs" that were then combined with computer generated

¹⁰² Richard Wright, *Tex* (software), Futurenatural Films, 1998.

¹⁰³ Richard Wright, *Z-Splicer* (software), Soft Future Productions, 1996.



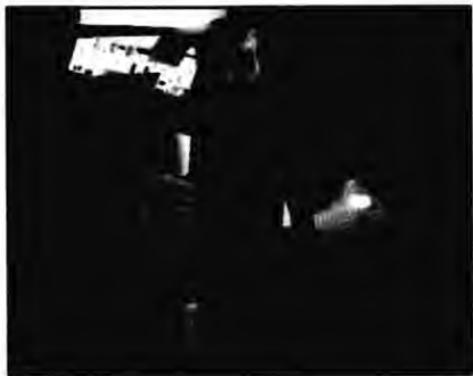
environments. The z-splicer extends this by giving full 3D depth to an entire live action shot by synthetically reconstructing it using 3D computer animation to create a "depth-map". This extra information allows shots to intersect and pass through each other as though they are ethereal but very vivid ghosts. Due to the effect of shots "slicing" through each other, the technique could also be thought of as a "depth wiping" transition effect. It can also be thought as of a new editing technique in its own right (rather than just another "effect"), enabling shots to be "matched on depth" as well as on action or on graphic qualities, etc.

The live action shots are composed so that they will intersect each other as dynamically as possible to make the effect visible. Ideally shots for z-splicing should contain objects which move in spatial planes which oppose one another. A depth-map is constructed from the shots using 3D computer animation and used to key layers together according to corresponding depth values while under software control. Although the shots pass through each other as though caught in a dream world, they all precisely intersect each other.

Each shot retains its dimensionality but not its physicality. In normal camera perspective every object is equal relative to a single space centred on the subject. In Z-splicer space many subjective spaces and perspectives along with their stylistic properties can be forced together. This can form a montage effect that takes place between shots at the same time rather than in a temporal sequence¹⁰⁴. There are some obvious combinations that could be constructed. The same scene shot from different viewpoints or time periods could be made to occupy the same screen space. Shots could be used from different historical periods, for example of different periods of architecture, perhaps combining buildings that were successively destroyed to make way for each other. A figure could be made to literally walk "through" a city's streets and traffic. Changing the scale of shots could be employed, like having an ocean liner moving through a bath, or a street of neon signs inside a living room. The technique could be used in ways that draw attention to its specific structural properties, but this risks the technique becoming fetishised. A figure portrayed in Z-splicer space could simply mean a figure freed from the normal constraints of physical solidity and its elaboration in a series of "walking through walls" type gags. Instead we might try to find ways in which the Z-splicer can bring objects and spaces into dialectical relations in order to reach a level of critical insight into the spatial conceptualisations that we take for granted.

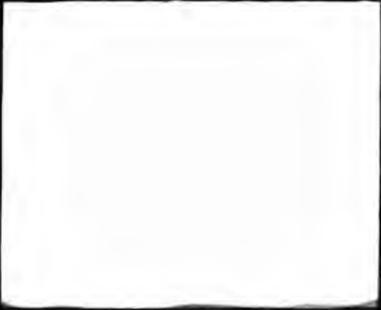
¹⁰⁴ Interestingly, Eisenstein gives an explanation of montage in terms of a lingering afterimage that combines each successive shot - in effect the montaged shots are seen retinally superimposed (Eisenstein, "Methods of Montage").

Because the current Z-splicer method works by first explicitly constructing the depth map of a live action shot by modelling it on the computer in 3D, the construction of the depth map itself is a matter of the modeller interpreting the three dimensional properties of the scene mainly by eye. Therefore this interpreted depth information need not correspond to any real physical space. One object could be constructed as lying nearer to the viewer than another which originally lay further away. This constructed depth could be interpreted symbolically while perhaps retaining the original visuals and their now contradictory visual depth qualities. Depth and spatial relationships could once again become emblematic as they were in the symbolic pictorial space of Medieval painting, although the image itself would still remain a photographic recording, creating a discontinuity between 3D depth and realism.



Richard Wright and Jason White, Z-Splicer demo reel, Soft Future Productions, 1996.

In the same way it is also now possible to represent pictures that have ambiguous or non-physical depth properties. On the z-splicer tape there are a few examples of this. Firstly there is an image of Van Gogh's *Chair with Pipe* of 1889 which is incorporated into a sequence. This space of this painting is somewhat expressionistic though still fairly conventional. Another example is a Cubist painting by Juan Gris, his *Guitar with Sheet of Music* of 1926. In this picture the representation of three dimensional space is heavily aestheticised by working it into the plastic space of the picture plane. Different angles and colours flip backwards and forwards in three dimensional depth as well as across the pictorial space of the canvas. In the video sequence this picture is freely interpreted spatially and combined with other shots and images whose visual representation of space is more traditional or cinematographic. Shots of electrical or wind-up toys like a robot and a space rocket appear and a child's ball rolls by. There is also a background provided by a photograph of the Grand Hall at Versailles and a picture of a seventeenth century *Vanitas* painting. One could imagine a history of spatial representation from Symbolic Medieval paintings through the Renaissance perspective to more recent impressionistic, cubist and abstract forms all combined in the same screen space. The more impressionistic or expressionistic spaces might be interpreted by combining the depth maps with



opacity maps in order to represent "fuzzy" spatial relations, like a transparent cloud of depth values.

Once the depth maps are constructed for each frame or still image they can be further manipulated. For instance, in one sequence on the tape the Z-splicer effect is changed by processing or animating the depth-map itself so that the shots "zoom up" through each other. The values of the second depth map are in effect scaled up from zero towards the viewer while the first is scaled down. There is no logical limit to the transformations that can be applied to the depth map values. They can be treated in the same ways that any image could be processed - we are after all dealing with in effect a "depth image". The standard image filtering functions that feature in a package like Photoshop or After Effects could be adapted to process this depth image. Applying transformations like twists, pinches and blurs would have the effect of distorting an object's entire spatial environment. The corresponding visual image or footage could have the same transformation applied to it to match or it could be left unchanged. Of course the depth effect of these distortions would only be apparent with respect to another shot that was z-spliced with it and could act as a reference.

Depth which is no longer tied to a real physical space has lost its natural value and become emblematic. Its value is now open to interpretation or even commodification. But like the commodities in Benjamin's allegory it might still also be able to function dialectically. By combining two different examples from the history of spatial representation we could gain an insight into how space itself is historicised and expresses meaning. We could also use the signifying functions of different spatial systems, perhaps by bringing together different spatial representations of the same events in order to reveal the ideologies operating within them. In Medieval times a symbolic space was used to encode the social hierarchy into relative sizes, and in a perspectival space the size of objects are determined and arranged with respect to a single observation point. The collision of these object centred and subject centred spaces could lead to an explicitly dialectical relation of depths.

Summaries, Conclusions, Speculations

A central theme in Buck-Morss's book on Benjamin's *Passagen-Werk* is the status of the allegorical method as capable of producing objective knowledge rather than subjective impressions. Buck-Morss makes short work of Hans Robert Jauss's critique of Benjamin's interpretation of Baudelaire who argues that the theory of allegory is just another hermeneutic strategy without objective basis. Buck-Morss points out that by separating Baudelaire's poetry from all historical and social necessities Jauss can only explain it as a development stuck within an aesthetic tradition which has its own inner dynamic determining literary form [Buck-Morss ¹⁰⁵]. We then come to Peter Bürger's critique of allegory in his influential book *Theory of the Avant-Garde*. Bürger is concerned to show how montage was used by the avant-garde art movements between the wars as part of their wish to reintegrate the institutionally separated art and society. Part of this programme was an aesthetic one in which montage is used to show how "reality fragments" from the social world are integrated into the pictorial space of the artistic world without reconciling them into a false totality. But Bürger makes clear that he does not believe that this montage effect can result by chance or without human agency. "The allegorist joins the isolated fragments of reality and thereby creates meaning. This is posited meaning; it does not derive from the original context of the fragments" [Bürger ¹⁰⁶]. We see now that Bürger's intense focus on the social function of art makes it unlikely that he will recognise anything beyond the subjective will of individuals. The purpose of integrating art and society is described as the desire to oppose the one-sidedness of bourgeois means-end rationality by introducing new values from the artistic sphere. Bürger discusses how the Surrealists attempted to introduce the irrational into society through their use of "objective chance", the sensitivity to meaning produced by the coincidence of fortuitous circumstances. But this attempt at a form of objectivity is also rejected as being simply a knee-jerk reaction to bourgeois rational self-determination by presenting purposelessness as the only form of resistance - "we are dealing here with an ideological category: the production of meaning, which is a production by the human subject, presents itself as a natural product that must be deciphered" [Bürger ¹⁰⁷]. Eventually we get to the point where Bürger appears to be saying that although the values of art might be therapeutic to society it is impossible to say where these values might come from if not from subjective

¹⁰⁵ Susan Buck-Morss, *The Dialectics of Seeing*, p 224.

¹⁰⁶ Peter Bürger, *Theory of the Avant-Garde*. p 69.

¹⁰⁷ *ibid*, p 66.

opinion. The final achievement of the avant-garde is therefore only to recognise the institutional separation of art and society but not to overcome it.

For Benjamin, the Surrealists are relevant because of their method of immersing themselves in the "dream world" of mass culture in order to record its mythological references, whether by objective chance or otherwise [Benjamin ¹⁰⁸]. But the Surrealists did not use historical knowledge to interpret their "dreaming" which would overcome their individual isolation and become "collective dreaming", dissolving myth into history. Bürger also hints at this neglected dimension when he states that "Instead of immersing himself in the secrets of man's making of this second nature, the Surrealist believes he can wrest meaning from the phenomenon itself" [Bürger ¹⁰⁹]. Nevertheless, Benjamin chooses to access these "secrets of man's making" by decoding them from the commodity form itself, which is already emblematised and fragmented due to its separation from its use value - it has already lost its "original" context and become a "wish image" in a new context.

Early in his book, Bürger does provide some clarity in how to view the subject's place in the motivation of historical events. The problem is that a one-sidedly subjective approach ignores from whence its power originates, whilst an objective approach ignores the effect of human agency in its own world. Bürger's answer is to place both subject and object historically - a meaning posited by a subject is only possible because of the historical development of its object. It is "Historical in the sense that the unfolding of objects and the elaboration of categories are connected" [Bürger ¹¹⁰]. Discontinuities in historical progress can become ways to return the initiative to a subjective agency which is in turn constrained by historical conditions. Therefore a historical critical theory must be self-critical with regard to its current place in history. Not all things are possible at all times, a notion recognised by Benjamin when he points out that allegory is an idea that only occurs in certain historical periods [Benjamin ¹¹¹].

What is at stake here for Benjamin is to uncover a force that is energising human history but in a non-teleological way. His answer seems to be that of man's "utopian desires" for a better world that recur in wish image form in new technologies and commodities at the same time that they are frustrated by dominant capitalist social relations. Adorno was worried that these "desires" were simply a trans-historical mystification of simple ideologies, but Buck-Morss does uncover

¹⁰⁸ Walter Benjamin, "Surrealism, The Last Snapshot of the European Intelligentsia", *One Way Street and Other Writings*, (trans. By Edmund Jephcott and Kingsley Shorter) NLB, London, 1979.

¹⁰⁹ Peter Bürger, *Theory of the Avant-Garde*. p 71.

¹¹⁰ *ibid*, p 16.

one way in which the desire for a better world could be transmitted materialistically through history and possibly how they can arise in the first place – through childhood.

In the industrialised world the child tends to play with commodified toys and is drawn to the cultural detritus and waste products that have been designed by the previous generation [Buck-Morss ¹¹²]. That parental generation encodes its own desires into these playthings and passes them on to their offspring. *Buzz Lightyear* is a good example of how the dreams of space travel of earlier decades have been reborn into a doll character who embodies the original desire for flight and heroic exploration but is ultimately disappointed. This historic moment of moon landings and space walks is transmitted through individual memory via childhood and collective mass culture. This is a possible mechanism for the operation of wish images that is trans-subjective but still materialist and historical. But the dynamics of ur-history do not end there. Childhood is characterised by Benjamin as a state of creative learning when everything is explored, everything is unfamiliar and "strange". The child takes these toy wish images and through play is given the chance to form new desires from their unforeseen potentialities. The primary means for this is not intellectual theorising but through exercising the mimetic faculty - of noting and acting out similarities. The child at play acts various scenarios in their make believe world and this play becomes an epistemological model for Benjamin for unlocking hidden powers of technology. This application of mimetics allows one to "anticipate the human re-appropriation of [technology's] power" [Buck-Morss ¹¹³].

This process does not imply that the utopian desires of the past are already existing full formed and waiting to be rediscovered. Remember that even for the Kabbalists utopia would take different forms each appropriate to the present time. The process of mimesis is a creative act, like the trial and error assembling of montage fragments, and can lead to the formation of historically new desires and insights connected to a collectively shared past. "The child's creative perception of the objects in fact recollects the historical moment when the new technology was first conceived - that 'too-early' epoch when, onto a new nature still in the stage of myth, all kinds of archaic symbols were cathected" [Buck-Morss ¹¹⁴]. New media technologies also operate in similar ways to this mimetic function, especially in film for instance, which copies or reproduces fragments of the external world and then montages them all together again, as

¹¹¹ Walter Benjamin, *Origins of German Tragic Drama*, p 45.

¹¹² Susan Buck-Morss, *The Dialectics of Seeing*, p 264.

¹¹³ *ibid*, p 270.

¹¹⁴ *ibid*, p 275.

though the camera itself is playing with reality, an effect Benjamin refers to as opening up an "unconscious optics" [Benjamin ¹¹⁵].

Mimetics is also related to the way in which concrete historical emblems evoke meanings without the need for any accompanying explanatory theory. The ur-history mimics the construction of history as such, by revealing the tensions between different social motivations. Benjamin's idea of the ur-history was based on his understanding of Goethe's concept of the ur-phenomenon, when what we observe reveals some theoretical law through its visible form, like the logarithmic spiral that forms a shell [Buck-Morss ¹¹⁶]. It is a form of knowledge that comes directly from experience - for Benjamin it would become a form of philosophical knowledge through historical experience. But there is also a link here with our discussion in Part 3 of the role of scientific theory and logical processes in image making. The ur-phenomenon is an early form of the idea that scientific knowledge can be obtained through simulating and visualising computer models of natural phenomena. Using mimetics rather than theoretical abstraction perhaps such methods may reveal something about the operation of scientific law, at the philosophical level if not also at the scientific level. To some extent this has already been demonstrated in the example of Heartfield's *German Natural History* photomontage as described in Buck-Morss ¹¹⁷. The montage creates a dialectic between nature and history using the natural development of the death's head moth to expose the unnatural and preventable historical development of National Socialism. This creates a mutually defining relation between the philosophical categories of nature and history and turns *German Natural History* into a philosophical critique as well as a political critique. The interpretation of this work depends on the biological development of the moth which therefore turns this scientific fact into an emblem for the inevitability of natural processes. To complete the allegory we would have to understand that the inevitable demise of political ideologies is a process of natural decay as well, and not necessarily fixed to a thousand year Reich. Scientific models can be emblematic whilst remaining functional. For the Marxist, social reality and the natural world as described by science are totally separate, but for allegorist they are dialectical.

The problem for Benjamin's conception of montage is that to form the allegory it must avoid being a technical rather than artistic procedure (such as in the simple splicing of film clips), avoid forming an aesthetic continuum of an organic pictorial space (as in cubism), an interpretative continuum of meaning into which fragments are unproblematically inserted like a jigsaw, and to avoid the subjective totality of polemics which forms another preclosure of meaning (as in much

¹¹⁵ Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction". In: *Illuminations*, (ed. by Hannah Arendt, trans. by Harry Zohn), Jonathan Cape, London 1970. p 230.

¹¹⁶ *ibid*, p 73.

¹¹⁷ *ibid*, p 60.

of Heartfield's photomontage). Benjamin's technique avoids empty subjectivity by being grounded in collective history, a collectivity that is guaranteed by the pervasiveness of consumer culture over the past 150 years. Thus the meaning of Benjamin's allegory is in the shared desires that permeate and mutate throughout history, appearing through commodities in compromised form. But the allegory that Benjamin describes is also a more general idea than that, being based on an application of the dialectical method through montage. This is clearest if we go back to the *Trauerspiel* study. There we find stated that allegory is a philosophical approach and as such could be general enough to be applied to scientific epistemology as well as the historical and social. The allegory is the form in which conflicting ideas are held together in a constellation of creative dialectical tension, and in the *Ursprung* of their histories [Benjamin ¹¹⁸]. In fact the "Epistemo-Critical Prologue" is intended to be a general critique of epistemological systems by allegory and there is no reason to think that Benjamin later changed his mind about this even though he came to apply this critique specifically to the history of material culture.

The idea of parts held together in creative conflict is central to the avant-gardist use of montage. In Bürger's definition the nonorganic work of art is composed of individual parts which lack necessity - they can be removed, replaced and reordered without the work becoming invalid [Bürger ¹¹⁹]. By contrast for the organic work of art the meaning is arrived at *hermeneutically*, by relating the meaning of each of the parts to the whole in a systematic and continuous way. For the montage based work it is impossible to derive meaning in such a way and its resistance is experienced in the viewer as shock. Instead of finding the meaning through the coherence of the parts to the whole the meaning must shift to a consideration of the principles of the construction of the work. At this level the meaning of the montage work is through a coincidence of form and content - the principles of construction of the montage work are the fragmentation, partiality and contingency we have discussed before. By extension we can conclude that reality itself cannot be grasped as a totality, not necessarily because reality itself is fragmentary (this would be the ontological position), but because our perception of it will always be multiple, just like the movie camera's erratic recording of disjointed shots. Montage can thus be a philosophical model for reality. Can transformation function in the same way?

Montage and transformation could be reasoned to be dialectically related. Although the philosophical position of montage would maintain that reality cannot be grasped as a unique whole, it would not be inconsistent to imagine that its fragments could transform into any number

¹¹⁸ Walter Benjamin, *Origins of German Tragic Drama*, p 39.

¹¹⁹ Peter Bürger, *Theory of the Avant-Garde*. p 80.

of fluid structures which remain transitory even if appearing unitary in each of the forms they take. The transformation could "interrupt" the stability of each form in this way as well as perform additional signifying functions according to its specific character. Fragmentation means that our perspective is always partial but could also imply the anxiety of atomisation and loss of social connection. The dynamics of the transformation means that something can take a number of separate unified forms but that this appearance of continuity or coherence does not imply permanence or identity. It is reminiscent of the transitory nature of allegorical emblems that can appear and pass away over time.

The purpose of the avant-garde's use of montage would be to overcome the illusion of identity and closure of meaning. Montage avoids this closure through the shock of the incompatibility of the part to the assumed whole. Transformation avoids closure of meaning by resisting a fixed form or identity. Of course both techniques could be made to mean something quite different. Montage may mean a number of fragmented viewpoints or the loss of viewpoint and meaning altogether into a kind of formal relativism. Transformation could mean the potentialities within what appears to be one form or the seamless erasure of differences between a number of forms. This is why their implementation is so important which takes us back to the shock and the dialectic.

Montage aims to shock us through the juxtaposition of its fragments. Through these fragments being brought into proximity with each other we can perhaps note relationships between elements that would not have been apparent otherwise. Depending on the construction of the montage these juxtapositions may be intended to have dialectical effects in which the relation between the fragments alter each other's meanings in ways that reveal a level of understanding that we were not aware of. This need not necessarily depend on references to historical facts, commodities or utopian desires as in Benjamin's allegories but could be limited to the level of philosophical categories. Buck-Morss's book confirms that this is one way to approach Benjamin as an early passage states that his aim was "A historical construction of philosophy that is simultaneously (dialectically) a philosophical reconstruction of history, one in which philosophy's ideational elements are expressed as changing meanings within historical images that are themselves discontinuous" [Buck-Morss ¹²⁰]. This is a more general description of the functioning of dialectical allegory which avoids questions of epistemology and metaphysics which cannot be addressed further here. But it is true that the montage effect demonstrates these tensions in meaning visibly and directly without mediating theory just as the ur-phenomenon could function

¹²⁰ Susan Buck-Morss, *The Dialectics of Seeing*, p 55.

as a direct source direct knowledge. Can the transformation provide the same kind of creative and engaging shock?

Bürger discusses the use of the new as a shock effect, but dismisses it as useless for being too non-specific [Bürger ¹²¹] – it is like the old technique of throwing together fragments in the hope that something interesting will emerge - the dialectical effect usually requires more foresight. He also rejects it "because it provides no criteria for distinguishing between faddish (arbitrary) and historically necessary newness" which would be similar to Benjamin's argument. The shock could mean as mentioned previously that the meaning of the nonorganic work can not be arrived at through hermeneutic closure, of relating each of the parts to the whole. This implies that montage has only one meaning - of disrupting totality, continuity, and progress and creating self-criticism in the viewer (and that the shock effect that causes this remains fairly non-specific). But Bürger does remind us that the open-ended form of montage allows us to mix the formal with the more polemical - "Instead of declaring the avant-gardiste structural principle of the nonorganic itself to be a political statement, it should be remembered that it enables political and non-political motifs to exist side by side in a single work" [Bürger ¹²²].

Martin Walsh in his book on Brecht's influence on the cinema describes how alienation or the shock effect can become neutralised through familiarity.

"At one time, the use of projected titles had an interruptive effect, since it cut across the expected conventions of the genre, thereby creating a meaning that could not be unconsciously responded to, consumed by the audience. One of the most vital precepts of Brechtian theory is the notion that alienation devices must never be reduced to *mere technique, or convention*, for then they become 'invisible' and our identificatory propulsions are not efficiently interrupted" [Walsh ¹²³].

Bürger also reminds us that shocks can be "consumed" as empty novelty and they can also be "non-specific" [Bürger ¹²⁴]. These criticisms can also be applied to any shock that is produced by a digital transformation, as well as the quality of passive fascination caused by the limitation of the shock to a display of technical virtuosity. Eisenstein also makes a useful distinction between provocative and seductive shocks in his early distinction between the "attraction" in the montage

¹²¹ Peter Bürger, *Theory of the Avant-Garde*. p 63.

¹²² *ibid*, p 91.

¹²³ Martin Walsh, "Losey, Brecht and Galileo", *The Brechtian Aspect of Radical Cinema*, BFI, London, 1981. p 114.

¹²⁴ Peter Bürger, *Theory of the Avant-Garde*. p 57.

of attractions and the "trick" [Eisenstein ¹²⁵]. The trick focuses attention on the dazzling skill of the performer while the attraction is designed to goad the audience into an active engagement. The attraction as shock therefore, is not immediately assimilable and provokes questioning. The trick absorbs the viewer and draws them in losing their distance while the shock throws the back on themselves.

Towards the end of his life Eisenstein wrote a series of notes and passages about the animations of Walt Disney which gives us some clues as to how the dynamics of the transformation could be further integrated into allegory, dialectics and critical art work in general [Eisenstein ¹²⁶]. Eisenstein was fascinated by the almost universal appeal of Disney's animations of the twenties and thirties. He believed that the secret of this appeal lay in the skill by which Disney animations made the contour lines of the drawn characters continuously transform from one shape into another in perfect timing and synchronisation. Eisenstein believed that in order for films to work at the level of intellectual conceptualisation they must first appeal through the levels of sensuous prelogical thought, and the visual qualities of Disney animations seemed to appeal to the lowest level of sensual thought, which he termed the "protoplasmic" –

"...for here we have a being represented in drawing, a being of a definite form, a being which has attained a definite appearance, and which behaves like the primal protoplasm, not yet possessing a 'stable' form, but capable of assuming any form and which, skipping along the rungs of the evolutionary ladder, attaches itself to any and all forms of animal existence" [Eisenstein ¹²⁷].

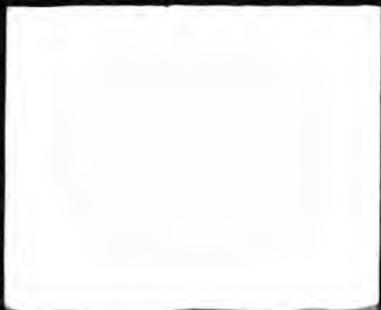
Interestingly Eisenstein does not limit this phenomenon to visual form, but tells us that a similar kind of quality can exist in a subject or a theme, such as in an unstable character in a film "...the kind of character for whom a changeable appearance is...natural". Earlier we noted through Benjamin that some of Brecht's characters were also very adaptable such as the Galy Gay character in *A Man is a Man* [Benjamin ¹²⁸]. In this case the fact that the character has so much potential for change within themselves is attributed to his lack of subjective continuity, he allows his identity to be "interrupted" by the situations in which he finds himself. This is one instance in which we could argue that a quality of the transformation has been attributed to a montage effect, and gives an example of how the two might intersect.

¹²⁵ Sergei Eisenstein "Montage of Attractions" (1923) In : *Film Form* (ed. by Jay Leyda), Harvest, London, 1949. p 181.

¹²⁶ Sergei Eisenstein, *Eisenstein on Disney*, (ed. by Jay Leyda), Methuen, London, 1988.

¹²⁷ *ibid*, p 21.

¹²⁸ Walter Benjamin, "What is Epic Theatre? [First Version]". p 13.



These writings of Eisenstein on Disney do not form any kind of theory that might definitively explain this quality of the protoplasmic, that of the animated contour line seamlessly transforming itself into a multitude of possibilities. But these notes do give us a wealth of possible directions that future research could take. At some points Eisenstein describes the protoplasmic as being a metaphysical quality of life, its continuous coming into being part of an organic essence that triggers a remote level of "pre-memory". It is also described as an effect caused by the survival of animistic thought, a stage in between undifferentiated and discrete perception in which the subject and the object share attributes. In this case the tracing of the observer's eye along the contours of a form is taken as the movement of the form itself in a kind of "motor metaphor". The protoplasmic effect could also be the dialectic tension between the visual qualities of a form's contour lines and what it logically represents, like the comical response caused by a character's neck stretching around a corner beyond the physically possible. There is also a social explanation in which the protoplasmic's "rejection of once-and-forever allotted form" is seen as a protest against a stifling social order and a desire for personal (or political) freedom, an aesthetic which would be particularly prevalent during periods of social change such as that between the wars.

Michael O'Pray has written a study of these themes which focuses in on still more explanations this time of a more psychoanalytical nature [O'Pray ¹²⁹]. The versatile abilities of the protoplasmic can be characterised as an desire for omnipotence that corresponds to Freud's ideas about how a patient can obtain relief from anxiety just by thinking that their problem has been solved – through the "omnipotence of thought". Another variation is obtained by way of the writings of Adrian Stokes, another keen Disney fan, who compares Disney to the virtuosity of ballet in its synchronisation of sound and movement. Stokes concludes that its appeal is through the apparent perfection of these movements resulting in an omnipotent fantasy of precision and control. (We could compare this to Brecht's ideas about the synchronisation of visuals and music in which the viewer loses control and critical distance and is absorbed into the spectacle). And finally there is a related idea of Eisenstein's in which the fascination of the omnipotence of the spectacle is put down to a fear for the image's "fragility", a tension caused by the animation having to maintain a level of almost unbearable technical perfection. All in all, this current stage of theorising about the phenomenon of the protoplasmic tends to revolve around the axis of freedom and control.

It is with regret that Eisenstein notes that during war period Disney's style "matures". He moves away from the "infantile" period of sensual thought and instead his films become utilitarian and instructional. The wild omnipotence of the writhing contour lines are gradually absorbed into the naturalistic backgrounds until, starting with *Bambi*, their power and virtuosity is eventually tamed by narrowly representational tasks [Eisenstein ¹³⁰].



Passage du Grand Cerf, Paris. From *Arcades : The History of a Building Type*, Johann Friedrich Geist (Meyer-Veden). (From: Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991, 3.5).
 Walt Disney Studios, *Oswald the Lucky Rabbit*, cartoon series, 1920s.

Totality can be interrupted by the fragmentation of montage, but also by returning to a formless state that is continuous but without a hypostatized structure. What is opposed by avant-garde

¹²⁹ Michael O'Pray, "Eisenstein and Stokes on Disney: Film animation and omnipotence", (ed. by J. Pilling) *A Reader in Animation Studies*, London, Paris, Rome, Sydney, John Libbey, 1997, pp.195 - 202.

¹³⁰ Sergei Eisenstein, *Eisenstein on Disney*, p 64.



practice is not continuity or even identity as uniqueness or individuality, but a permanent autonomy and totality of structure that is often expressed through the continuity of a naturalistic appearance. Transformational aesthetics may be continuous and shockingly perfect in execution but need not be autonomous and unquestionable. Digital transformations can also provide their own dynamically perceptible "principles of construction" that give direction and signification to the shock. An arbitrary transformation is the morph that blends any image into any other without respecting differences, its seamless execution becoming technically fetishised.

The deconstructive tendencies of the montage method are not opposed by any unifying tendencies of the transformation but by its particular dynamics of dispersion. Against the fragmentation of the montage we have the liquidisation of the transformation, against disintegration we have an act of melting, against the assembling of motifs we have the interpenetration of flows. There is a dialectic at work here between the arbitrary encounters of fragments and flows and the dynamics of constructed signs. We need to use the creativity of the unpredictable but retain the signification of the construction to avoid losing the attraction of the shock.

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Film, Video and Software Bibliography

Bertolt Brecht, *The Threepenny Opera*, theatre play, 1928.

James Cameron (dir.), *Terminator 2 : Judgement Day*, 1991.

Sergei Esienstein, *Strike*, film, 1924.

Sergei Eisenstein, *Battleship Potemkin*, film, 1925.

Sergei Eisenstein, *October*, film, 1928.

Sergei Eisenstein, *Ivan the Terrible*, film, 1944.

Alfred Hitchcock (dir.), *Psycho*, MGM, 1960.

D W Griffith, *Intolerance*, film, 1916.

John Landis (dir.), *Black White*, MJJ Productions, 1992. Digital effects by Pacific Data Images.

Martyn Pick and Richard Wright, *Gridlock*, Beta SP, 1997.

SoftImage Inc, *Softimage 3D*, 3D animation software, 1991.

Jason White and Richard Wright, *Heliocentrum*. Soft Future Productions, Beta SP, 1995.

Richard Wright, *Fluids* (software), Soft Future Productions, 1994.

Richard Wright, *Z-Splicer* (software), Soft Future Productions, 1996.

Richard Wright and Martyn Pick, *Play to Win*, Beta SP, 1997.

Richard Wright, *Tex* (software), Futurenatural Films, 1997.

Richard Wright, *LMX Spiral*, Futurenatural Films, Beta SP, 1998.

Yost Group, *3D Studio Max*, 3D animation software, published by Kinetix (Autodesk Inc), 1996.

Bibliography

Yves Abrioux, *Ian Hamilton Finlay*, Reaktion Books, 1992.

Walter Benjamin, *Origins of German Tragic Drama* (1928), (Intro by George Steiner, trans. by John Osborne), Verso, 1996.

Walter Benjamin, "What is Epic Theatre? [Second Version]". In : *Understanding Brecht*, (Intro by Stanley Mitchell, trans. by Anna Bostock), Verso, London 1992.

Walter Benjamin, "What is Epic Theatre? [First Version]". In : *Understanding Brecht*, (Intro by Stanley Mitchell, trans. by Anna Bostock), Verso, London 1992.

Walter Benjamin, "Studies for a Theory of Epic Theatre". In : *Understanding Brecht*, (Intro by Stanley Mitchell, trans. by Anna Bostock), Verso, London 1992.

Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction". In : *Illuminations*, (ed. by Hannah Arendt, trans. by Harry Zohn), Jonathan Cape, London 1970.

David Bordwell, *The Cinema of Eisenstein*, Harvard University Press, Cambridge and London, 1993.

David Bordwell and Kristin Thompson, *Film History*, McGraw Hill.

Bertolt Brecht, *Brecht on Theatre*, (ed. by John Willett) Hill and Wang, New York, 1964.

Susan Buck-Morss, *The Dialectics of Seeing*, MIT Press, Cambridge and London, 1991.

Peter Bürger, *Theory of the Avant-Garde*, Manchester University Press, Manchester, 1984 (1974).

Martin Esslin, *Bertolt Brecht*, Columbia University Press, New York and London, 1969.

Sergei Eisenstein "Montage of Attractions" (1923) In : *Film Form* (ed. by Jay Leyda), Harvest 1949.

Sergei Eisenstein "The Montage of Film Attractions" (1924) In : *Eisenstein at Work*, by Jay Leyda and Zino Voynow, Methuen, London, 1985.

Sergei Eisenstein, "Methods of Montage" (1929) In : *Film Form* (ed. by Jay Leyda), Harvest 1949.

Sergei Eisenstein, "A Dialectical Approach to Film Form" (1929) In : *Film Form* (ed. by Jay Leyda), Harvest 1949.

Sergei Eisenstein, "Film Form : New Problems" (1934) In : *Film Form* (ed. by Jay Leyda), Harvest 1949.

Sergei Eisenstein, *Eisenstein on Disney*, (ed. by Jay Leyda), Methuen, 1988.

Alan Fournier, "Prolegomenon", *The Modeling of Natural Phenomena*, SIGGRAPH '87. ACM Press, New York, 1987.

Norman Geras, "Marx and the Critique of Political Economy". In: *Ideology in Social Science: readings in critical social theory*, (ed. by Robin Blackburn). Fontana, London, 1972.

Peter Gidal, "Theory and Definition of Structuralist/Materialist Film", *Studio International*, Vol 190, no 978, pp 189-196, 1975.

Brian Henderson, "Two Types of Film Theory". In : *Movies and Methods, Vol 1* (ed. by Bill Nichols). Berkley, London, University of California Press, 1985.

Michael Kass and Gavin Miller, "Rapid Stable Fluid Dynamics for Computer Graphics". In: *Computer Graphics*, Vol 24, no 4, August 1990. ACM Press, New York, 1990.

Jill Nelmes, *Introduction to Film Studies*, Routledge, 1996.

Jay Leyda and Zina Voynow, *Eisenstein at Work*. Methuen, 1982.

Lyotard, J-F, *The Postmodern Condition : A Report on Knowledge*, Manchester University Press, Manchester, 1984.

Laura Mulvey, "Visual Pleasure and Narrative Cinema", In: *Film Theory and Criticism*, (ed. By Mast, Cohen and Braudy), Oxford University Press, Oxford, 1992.

Michael O'Pray, "Eisenstein and Stokes on Disney: Film animation and omnipotence", (ed. by J. Pilling) *A Reader in Animation Studies*, London, Paris, Rome, Sydney, John Libbey, 1997, pp.195 - 202.

Craig Owens, "The Allegorical Impulse: Toward a Theory of Postmodernism", *October*, Vol 12, 1980. pp 67 - 86.

Eric S. Raymond, *The Cathedral and the Bazaar*, Linux Kongress '97.
<http://www.tuxedo.org/~esr/writings/cathedral-bazaar/>

Craig Reynolds, "Flocks, Herds and Schools. A Distributed Behavioral Model" *SIGGRAPH '87 Proceedings*, ACM Press, New York, 1987.

Hans Richter, *Dada: Art and Anti-Art*, Thames and Hudson, Cologne, 1964.

Robert Rosenblum *Cubism and Twentieth Century Art*, Abrams, New York, 1959.

Andrew Ross, *Hacking Away at the Counterculture*. In : *Strange Weather*, Verso, London and New York, 1991.

Gershom Scholem, *The Messianic Idea in Judaism, and Other Essays in Jewish Spirituality*, Schocken Books, New York, 1971.

Victor Shklovsky, "Art as Technique". In : *Russian Formalist Criticism. Four Essays*. (ed. by L Lemon and M Reis), University of Nebraska Press, Nebraska, 1965.

Martin Walsh, "Losey, Brecht and Galileo", *The Brechtian Aspect of Radical Cinema*, BFI, London, 1981.

Peter Wollen "Eisenstein's Aesthetics". In *Signs and Meaning in the Cinema*, Thames and Hudson/BFI, London, 1969.

Peter Wollen, "The Two Avant-Gardes". *Studio International*, Nov/Dec, 1975. p 174.

Peter Wollen, "Godard and Counter Cinema : Vent d'Est" (1972). In : *Readings and Writings*, Verso, 1982. pp 79-91.

Richard Wright, "Computer Graphics as Allegorical Knowledge: Electronic Imagery in the Sciences", *SIGGRAPH '90, Digital Image – Digital Cinema*, Leonardo, Pergamon Press, Oxford and New York, 1990.

Richard Wright, "Towards a Poetics of Knowledge". In: *Third Annual New York Digital Salon*, Leonardo, Vol 28, no. 5, Pergamon Press, Oxford and New York, 1995.



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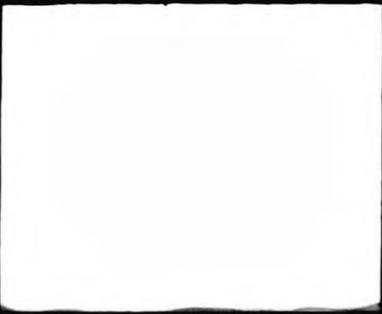
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