

New Media and the Permanent Crisis of Aura

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Abstract / Walter Benjamin is best known for his essay 'The Work of Art in the Age of Mechanical Reproduction', (Benjamin, 1968b) in which he argues that film and other mechanical technologies are destroying the aura that had belonged to traditional art. In this article we apply Benjamin's concept of aura to new (digital) media, and in particular to 'mixed reality', a group of technologies that blend computer-generated visual, aural, and textual information into the user's physical environment. We argue that mixed reality increases the options for designer-artists and apparently allows the invocation of aura in new ways. Our culture's pursuit of auratic experience remains problematic in mixed reality as it was for Benjamin in the case of film. New media maintain aura in a permanent state of oscillation or crisis, and this crisis is a key to understanding new media.

Key Words / augmented reality / aura / Walter Benjamin / media theory / remediation

Aura is one of the most commonly invoked terms in media theory. Walter Benjamin's argument that film and other 'reproductive' media diminished or destroyed the aura that had belonged to earlier art is regarded as one of the foundations of media theory. Benjamin was writing, however, in the 1930s, when film was the popular 'new medium' that posed a challenge to the traditional plastic arts. What does the coming of digital media do to Benjamin's argument? Is his analysis of aura still valuable in a media economy in which film and photography compete for cultural status with computer games, various web genres, and enhanced television? We believe that the question of the loss of aura is especially relevant for a particular group of digital media technologies called 'mixed reality', which combine the physical and the virtual and therefore exist at the boundary between reproductive technologies and older forms, to which Benjamin ascribed aura.

In this examination of aura and digital media, we hope to demonstrate the value of reading traditional media theory over against contemporary media practice. The question of aura is particularly appropriate for examining the reciprocal relationship between theory and practice. Benjamin was trying to understand the cultural significance of the first wave of reproductive media, photography and film, just as today we are trying to

understand another wave of such media in an era of computer games and enhanced television. With his notion of aura, Benjamin identified a vital element in our culture's reception of reproductive media. We will argue, however, that Benjamin was wrong if he thought audiences and producers would accept a final and irrevocable loss of aura in their popular media forms. What Benjamin identified was not the end of aura, but rather an ongoing crisis, in which the experience of aura is alternately called into question and reaffirmed.

Pure Virtuality and Mixed Reality

In the past decade, mixed reality has been an area of increasing interest for computer applications designers and human-computer interface specialists. In mixed-reality (MR) applications, the computer provides digital information that is integrated into the user's view of the physical environment. This integration can be accomplished with a variety of configurations of hardware and software, and the different strategies have been given a variety of names, including 'ubiquitous computing', 'augmented reality', 'wearable computing', and 'tangible computing'. All of these approaches combine physical and virtual elements into a single experience for the user. What we might call the paradigm of mixed reality is now competing successfully with what we might call 'pure virtuality' – the earlier paradigm that dominated interface design for decades.¹

In purely virtual applications, the computer defines the entire informational or perceptual environment for the user. Purely virtual interfaces began with the development of interactive computing in the 1960s, when users worked by typing command-lines into CRT terminals. In the days before graphic terminals, each application could offer its user only an alphanumeric information space. With the development of computer graphics, however, designers were able to make these information spaces into visual experiences for their users. Developed in the 1970s and 1980s, the desktop GUI (graphical user interface) remains today the most widely used, purely virtual application; computer games are also virtual spaces in this sense. Virtual reality (VR) provides perhaps the most compelling examples of pure virtuality. The goal of VR is to immerse the user in a world of computer-generated images and (often) computer-controlled sound. Although practical applications for VR are relatively limited, this technology still represents the next (and final?) logical step in the quest for pure virtuality. If VR were perfected and could replace the desktop GUI as the interface to an expanded World Wide Web, the result would be cyberspace.

Although the term 'cyberspace' first appeared in William Gibson's dystopian science fiction novel, *Neuromancer* (1986), it was subsequently adopted by many as an expression of their enthusiasm for pure virtuality. Cyberspace was supposed to be the 3D visualization of the ultimate information network, of which the Internet was just the first approximation. Enthusiasts for Internet communication (such as John Perry Barlow) or for human beings themselves as information processors (such as Hans Moravec) saw pure virtuality as a means of freeing us from the physical and cultural limitations of our embodied existence. Their exaggerated claims in turn provoked a critique of the idea that technology could or should free us from our bodies. The criticism came from a range of theorists, including N. Katherine Hayles (1999), A. Rosanne Stone (1991), and much of the electronic writing community.

MR designers and HCI (human-computer interaction) specialists with no explicit interest in media theory have been conducting their own critique of pure virtuality, as they design applications that acknowledge the user as an embodied creature with physical and cultural needs and desires. Such applications do not situate the user in cyberspace, but rather in the office, at home, or perhaps on a visit to a museum. This approach, which Paul Dourish calls 'embodied interaction', marks a significant expansion of the practical uses of digital technology as well as a changed sense of its cultural significance.² The designer first examines how the user interacts with the current work or leisure environment and then how a new digital application will alter and (one hopes) improve the interaction. Unlike a VR application, which takes the user out of the world, an MR application re-presents the world to the user, by enhancing (or distorting in a creative way) the user's physical and social space.

We have become increasingly aware of the importance of embodied interaction while developing an Augmented Reality (AR) system for experience design (MacIntyre et al., 2004). Although our system, named DART (Designer's Augmented Reality Toolkit) has a range of potential uses, we have focused on creating dramatic or narrative experiences in AR. In these applications, DART augments the user's experience of a physical setting, which may be indoors or outdoors, by adding a digitized audio of human voices or a video of human actors; the user wears a headset that presents the video or the audio under programmed control. We are currently designing applications that will enhance culturally significant locations. One such location is the Oakland Cemetery in Atlanta, Georgia, the major burial ground from 1850 to the early 20th century and therefore a physical embodiment of the history of the city (Taliaferro, 2001). We are designing an audio experience in which visitors walk among the graves and hear the stories of the ghosts. These virtual characters dramatize their historical significance for the city and for the American South. (Later, we hope to develop a video version in which the visitors would see ghosts at their graves.) Oakland and similar projects follow the paradigm of situated interaction. At the same time, they raise again for digital media what has always been the central question of media theory: the question of uniqueness and immediacy in mediated experience.

Like film, all forms of digital media are reproductive technologies. Because the computer is capable of perfect reproduction of information, the same media experience can be offered repeatedly to a series of users. VR experiences are completely repeatable wherever the VR equipment can be set up. Because they are not purely virtual, however, MR and AR experiences are not perfect reproductive technologies. Instead, they draw on the physical and cultural uniqueness, the 'here and now', of particular places. In the Oakland project, for example, we are seeking to exploit the unique character, the aura, of the cemetery. As a first approximation – for the practical purpose of experience design – we have defined 'aura' as the personal and cultural significance that an object or place holds for an individual or a group of viewers. But we are compelled to acknowledge that Benjamin's own definition of aura was far more complex and ambiguous. Although primarily interested in aura in art objects, Benjamin also wrote of natural landscapes and even people as having aura. In 'The Work of Art in the Age of Mechanical Reproduction', he suggested famously that, as reproductive technologies, film and photography diminish the sense of aura that was evoked in painting and sculpture (1968b: 217–51). Today, when digital technology is spawning

a variety of new media forms, it is worth considering what these forms do to auratic experience.

As we have already suggested, different digital forms seem to differ in their capacity to evoke aura. In a pure VR application, the physical location of the user is irrelevant. Ideally, the user neither sees nor hears the laboratory where her body is situated, but experiences instead a wholly virtual world. In an MR application, however, the experience is a hybrid, in which the physical and the virtual are necessarily intertwined. The physical place, which is unique, lends uniqueness to the experience and may revive the possibility of evoking aura. On the other hand, the subtlety of Benjamin's notion prevents us from simply equating mixed reality with aura and pure virtuality with the rejection of aura.

Benjamin's Aura

To appreciate the complex fate of aura in digital media, we need to examine, at least briefly, Benjamin's characterization of aura in photography and film. There are three essays, all written in the 1930s, in which Benjamin deals with the concept expressly and at length.

'The Short History of Photography', published in 1931 (Benjamin, 1972 [1931]) is the earliest of the three.³ Here Benjamin is concerned with the early development of photography: in particular how daguerreotype portrait photography developed from portrait painting and how this early phase in photography later gave way to a new aesthetic. Early photographs possessed an aura that surrounded each image and was expressed technically in the continuous tonal values of the early technologies. Aura was a sentimental, bourgeois attitude, or even a mystical breath that encircled the photograph. After the 1880s, photographers such as Atget, whom Benjamin sees as a forerunner of the surrealists, 'sucked the aura out of reality' (Benjamin, 1972 [1931]: 378). Benjamin implies that this anti-auratic photographic practice is appropriate to the medium, which should not promote aura as painting does.

'The Work of Art in the Age of Mechanical Reproduction' (1968b) offers Benjamin's most influential statement on aura.⁴ In the 'Short History', aura was characterized as an attitude of reverence towards art. In the 'Work of Art' Benjamin develops his argument based on changing technologies of representation. Aura belongs to works of art that are unique, as most art was before technologies of mechanical reproduction. Aura is the sense of the 'here and now' that each such work possesses because of its history of production and transmission. This uniqueness lends to each painting or sculpture a special quality, which can in turn evoke an attitude of reverence on the part of the viewer. In a difficult passage, Benjamin compares the viewer's experience of a work of art with the experience of nature.

We define the aura [of natural objects] as the unique phenomenon of a distance, however close it may be. If, while resting on a summer afternoon, you follow with your eyes a mountain range on the horizon or a branch which casts its shadow over you, you experience [breathe] the aura of those mountains, of that branch. (1968b: 222–3)

This quality of distance-no-matter-how-near is a key to Benjamin's thinking (and to understanding aura in new media). Benjamin offers his example of aura in nature specifically in order to illustrate aura in art: the analogy suggests that the closer we come to a work

of art, the better we appreciate the distance between ourselves and that work. The physical presence and uniqueness of a painting or sculpture generate (ironically) a sense of distance and therefore aura. Although we might be close enough to touch or even deface the painting, we cannot touch or affect its unique history.

Unlike painting, photography and film do not inspire such feelings of reverence and remoteness, because they are technologies that reproduce their objects of representation 'automatically'. Photographs and films are artifacts that can themselves be reproduced automatically in an arbitrary number of (nearly) identical copies, and each copy can have the same status as every other. A visitor to the Louvre comes to see the original Venus de Milo, with its complex history of transmission from the island of Melos in the 2nd century BC to the Louvre in the present. For the viewer of a Chaplin film, on the other hand, the experience is the same no matter which of the thousands of copies he happens to be viewing. In the age of film and other reproductive technologies, aura undergoes a decline. The term Benjamin uses is *Verfall*, which also suggests degeneration or decadence, although in fact Benjamin does not take the position that the decay of aura is culturally bad. On the contrary, he believes that the *Verfall* of aura makes possible a new political cinema.

Benjamin distinguishes stage acting from film acting on the basis of aura. In a dramatic performance, the physical presence of the stage actor preserves aura. In film, however, artistic expression is no longer centered in the actor, but rather in the camera, which treats the actor as it does all other elements of the filmic world. Benjamin regards film as a reflexive medium, because the mobile point of view of the camera and the techniques of editing lead the viewer to explore and reflect on the world seen through the lens (1968b: 232–7). In fact, mechanical technologies of reproduction do not simply affect the viewer's response to art. Benjamin makes the larger claim that these technologies have changed our collective sense of perception. Auratic perception is one way of seeing the world; photography and especially film offer another. The film camera, which penetrates the space of the scene and even, metaphorically, the film actor him- or herself, conditions us to view the world as evacuated of aura.

Benjamin's last extended discussion of aura appears in the essay 'On Some Motifs in Baudelaire' (1968a). The main concern here is verbal expression (and memory), rather than photography or other visual technologies per se. Benjamin defines aura in this context as the 'associations, which, at home in the *memoire involuntaire*, tend to cluster around an object of perception' (1968a: 186). Still photographic and film cameras, we learn here, extend the range of voluntary memory (*memoire volontaire*), because they provide a permanent, visible record of the sound and the sight of an event. Benjamin takes note of Baudelaire's claim that photography is suitable to record ephemeral events and objects, but is not compatible with the realm of imagination. And what Baudelaire regards as the realm of imagination is for Benjamin the realm of aura. Although Benjamin does not make the point explicit, we could say that from a modernist perspective the connection between involuntary memory and aura is that both are nostalgic. An involuntary memory concerns an event that is now recoverable only through association: it carries with it a sense of remoteness, of distance-no-matter-how-near. It was the element of nostalgia in aura, to which Benjamin himself was attracted in his earlier writings and which he later hoped to banish from artistic representation.

In the 1930s, then, Benjamin offered a series of characterizations of aura and applied the term to a range of human experience. Aura can belong to works of art, natural

phenomena, and even human faces or figures. Benjamin thought he was demystifying the concept of aura, which he derived from the theosophical and Jewish mystical traditions of the 19th century.⁵ He saw film technology in particular as rescuing art from its sentimental (auratic) condition and making a more advanced political expression possible. Yet Benjamin's own characterization of aura is ambiguous and perhaps ambivalent. Aura can usually be understood as a psychological state, an attitude or feeling that the viewer experiences when contemplating a work of art or a mountain or other manifestation of nature. And yet Benjamin sometimes writes as if aura were a quality (almost an emanation) of an object, such as a painting. The ambiguity is apparent in the key phrase: aura is the 'unique phenomenon of a distance, no matter how near'. We will argue that this tension between far and near – between the unapproachable and the approachable both at the psychological level and at the cultural and economic level⁶ – in fact ensures that aura as our collective or individual reaction to art can never simply disappear, as Benjamin seems to have expected.

Film and Aura

We have to question whether Benjamin is right that film precludes aura as an aesthetic response. Applying the far-and-near criterion, we could argue that there have been auratic and non-auratic styles or genres throughout the history of film. The popular style of filmic narrative that was defined in the 1910s and continues to characterize the Hollywood film seeks to maintain aura in two ways. First, the representational practice of the Hollywood style aims to evoke in the viewer a sense of immediacy, not the reflective attitude that Benjamin ascribes to film. Once a viewer becomes accustomed to continuity editing, the edits disappear from her conscious perception of a film. As the name ('continuity editing') suggests, the visual presentation that is in fact discrete comes to be felt as continuous, and the viewer experiences the shifting point of view as 'natural'. The mobile camera could be said to bring the depicted world near to the viewer, which Benjamin claims diminishes aura. But the ambiguity of the far-near distinction also admits the opposite interpretation: that the transparent style creates a sense of distance where distance does not really exist. The viewer is actually watching images play across a flat screen, but is fooled into seeing a world beyond the screen. The Hollywood style encourages the viewer not to think of the process of representation or the screen (however near it may be), but to look through the screen to an imaginary world.⁷

In addition, we can point to the cultural practices that grew up around film – the Hollywood star system, which even today makes the stars themselves into auratic objects, who are remote no matter how near. The popular audience participates eagerly in the process, not only by attending the films, but also by buying magazines (and now visiting web sites) to learn more about its favorite celebrities. The aura of the stars consists in conflating their presentation on the screen with their lives off screen. They appear on the screen in giant close-ups, while their celebrity makes them distant, almost ritual figures, larger than life and different from the rest of us. From the 1910s to the present, the public has expected that the stars will live out stories in the physical world that reflect the characters they portray. The transparent mode of representation applies to the stars themselves, as is illustrated by the fact that fans often stubbornly confuse actors with the

characters they play. The Academy Awards (where actors parade before attentive fans in person and on television) and the whole publicity machine of celebrity affirm the auratic power of film stars.

Benjamin took note of the process of celebrity in the 'Work of Art' essay, but dismissed it as a characteristic of the western capitalist film industry:

The film responds to the shriveling of the aura with an artificial build-up of the 'personality' outside the studio. The cult of the movie star, fostered by the money of the film industry, preserves not the unique aura of the person but the 'spell of personality', the phony spell of a commodity. So long as the movie-makers' capital sets the fashion, as a rule no other revolutionary merit can be accredited to today's film than the promotion of a revolutionary criticism of traditional concepts of art. (1968b: 231)

Benjamin's ambivalence emerges here: he is implying that the aura of earlier art forms was authentic, but that in the world of film, only a contrived sense of aura remains. In any case, a politically revolutionary film style was no more popular in Benjamin's day than it is in ours, and we have to doubt whether popular film ever constituted the aesthetic revolution that Benjamin claimed for it. The Hollywood style and its European counterparts have dominated film from his day to the present. It is true, particularly in recent years, that even mainstream Hollywood films sometimes become self-referential and can treat the star system itself ironically, as when, for example, Julia Roberts impersonates herself in the insistently 'smart' *Ocean's Twelve*. Hollywood filmmakers can toy with abandoning the transparent representation, precisely because they know that it provides a safe port of return, as it has for decades.

On the other hand, a thoroughly reflective film style, in which Benjamin placed his aesthetic and political hopes, did characterize avant-garde film of the 1920s. Benjamin regarded film as the popular expression of the reflective practices that the elite art world knew as dada and surrealism. But in fact, the reflective films of his period were also 'high art' – the work of dadaists and surrealists such as Leger, Man Ray, and Buñuel, none of whom could be considered popular filmmakers.

Aura and Presence

The difference between film and stage drama – so important for Benjamin – appears to turn on the notion of presence (that which is so near as to be immediate). Film has to reconstruct the sense of presence that a spectator of a live drama experiences apparently without mediation. The relationship of mediation and presence has been a central concern for media theory, performance studies, and postmodern theory in general, but most media theorists may not be aware that researchers in Virtual Reality have developed their own concept of presence. Correspondingly, the VR research community is not in general aware of either Benjamin's concept of aura or the long discussion of presence in the humanities.

For computer science, a (carefully defined) sense of presence is both a goal and a measure of VR applications. In 1992 the first number of the journal *Presence* was published to examine this phenomenon in virtual environments, and in that first issue, Sheridan offered a definition of presence as the feeling of 'being there' – being in or surrounded by a virtual environment (Sheridan, 1992). VR researchers should therefore

measure the extent to which the user feels herself to be in an environment other than the one (usually a computer lab) in which she is physically located. Another term, telepresence, is also used by this community, specifically to describe remote-control applications. For example, a technician might need to control a robot that is sent to clean up waste in a nuclear reactor. The interface is designed so that the technician feels (tele)present in the reactor, even though she is in a control room at a safe distance from the site. For example, the interface might include stereo cameras to give the technician some sense of immersion in the remote environment.

Lombard and others later suggested a complementary definition, in which presence was defined as an absence, the absence of mediation (Lombard and Ditton, 1997). In most VR systems, the user is actually sitting or standing in a laboratory, wearing a relatively bulky headset and looking through eyepieces at a cartoonish graphic environment drawn by the computer. In some cases she may be in a 'cave', in which the computer graphics are projected onto the walls and sometimes the floor and ceiling. If the user ceases to be aware of all this technology, according to Lombard, she can be said to be present in the VR environment. The definition is not limited to VR; any medium can potentially generate a sense of presence, if the user is made to forget the technology. Some degree of presence can be generated by a film or even a novel, if the reader 'loses' herself in the story. Some researchers call this the 'book problem', because it seems problematic to them that presence could be felt without computer graphic immersion. This definition of presence in fact assumes that the goal of media technology is transparency. As noted earlier, Hollywood filmmakers try to achieve transparency through continuity editing as well as an engrossing narrative. Most VR designers, especially in the early years of VR research, have assumed that the way to achieve transparency and therefore presence is through high-quality, photorealistic graphics and the most accurate tracking technology possible.

VR researchers are looking for an operational definition of presence that can measure the effectiveness of VR applications, and the dominant approach has been to develop questionnaires that they can administer to subjects in VR experiments.⁸ Another approach has been to try to establish physiological measures of the presence in the user. In one such experiment, the subject not only wears a headset, but also equipment that monitors heart and skin condition. The subject enters a (virtual) room in which she sees a large (virtual) hole in the floor with a 20-ft drop to another room below. Most subjects feel fear, and some get vertigo; most avoid stepping into the hole and display measurable physiological changes (in heart rate, skin resistance, and skin temperature) if they come close (Whitton, 2003).⁹ For VR research, this experiment offers an operational definition of presence: the subject feels present in the virtual environment because she reacts physiologically as she would in a similar physical environment.

At this point we can bring Benjamin and media theory back into the discussion and observe that in one sense Benjamin's aura might be regarded as contrary to the VR concept of presence. We can see this clearly in telepresence applications. For Benjamin, aura is a sense of distance no matter how near, while telepresence is a sense of proximity no matter how far the subject really is from the physical location. To take what is remote and unapproachable (and therefore auratic) and to bring it near to the subject is precisely Benjamin's recipe for destroying aura. Interestingly, popular film would seem to be like VR in this sense. Like VR today, film for Benjamin seems to be a purely virtual

technology, one that severs the subject's connection to the physical world, as film theorists of the 1970s emphasized. The viewer enters the enclosed and darkened space of the theatre, and it is the task of the film to construct an alternative virtual world on the screen. If aura depends on the subject's physical connection to a place or object that has aura, then film – like VR or any other self-contained technology of representation – destroys aura by breaking that connection.

The ambiguity of Benjamin's definition, however, suggests another interpretation, in which aura and VR presence are compatible. We can see their compatibility in Benjamin's nature analogy, in which the subject experiences (breathes in) the aura of a mountain or branch on a summer afternoon. Here Benjamin appeals to nature as an immediate presence, yet this very presence reveals the distance between the subject and nature, in the sense that the felt immediacy and transparency of nature compel the human subject to appreciate its remoteness. If transparency in nature can evoke aura, then transparency in art should do the same. Since certain styles in film and photography (and VR) have all aimed for this feeling of transparency, we are left to wonder why Benjamin does not acknowledge that mechanical technologies can evoke legitimate aura.

What about the hybrid forms of MR, in which the computer-generated virtual images and sounds are situated in a physical environment? Here the experience is both immediate and mediated. In the Oakland Cemetery, for example, a physical tour of the cemetery should be high in aura, and a tour supported by augmented reality perhaps equally high. Because both the human-guided tour and the augmented tour maintain the user's physical connection to the site, the experience will be felt as unique. Physical presence should enhance the aura. In this respect, MR experiences should be more effective at conveying aura than other media forms. As with presence itself, however, any media technology could enhance aura by building a sense of distance-through-proximity. In the case of historical or cultural sites, this enhancement can be achieved by providing information about the place or object that establishes connections with the viewer's previous knowledge. For example, if the user knows nothing about the significance of the Oakland cemetery for American history, then she can only understand her visit as a visit to the generic place, 'cemetery'. (Even a generic cemetery will have some associations.) As the visitor learns more about the people buried at Oakland and the art and architecture of the monuments, her associations become more varied, and she comes to appreciate the uniqueness of this cemetery. Any media technology – a web site, a film, or even a prose description – could build such associations. (Benjamin suggests that lyric poetry prior to Baudelaire had aura.)

A media technology's capacity to generate aura depends on the degree to which it convinces the user that she is in the presence of the authentic; presence and authenticity therefore depend on assumptions that the user has about the technology. Presence is not simply a question of visual fidelity. For example, we can imagine creating a VR walk-through of the Oakland cemetery in photorealistic graphics at 30 frames per second ('real time'). As long as the user knows that she is in a VR experience, that knowledge would limit, although perhaps not completely eliminate, the aura of the experience. The reason is simply that the user knows that VR is a reproductive technology. Designers of a VR application should find it challenging to generate aura, because of the difficulty of invoking the interplay of near and far. In VR, everything is equally 'near': there is no distinction between the objects, the buildings or interiors, the background – everything

is created by computer graphics. The aura of a VR application is therefore derivative or nostalgic.

A research project called BENOGO (at universities in Scotland, Denmark, Germany, and elsewhere in Europe) has been exploring VR techniques to recreate the experience of visiting well-known locations (for example, the Botanical Gardens in Prague or Notre Dame Cathedral in Paris): that is, to permit the user to 'be there' without 'going there' (Turner et al., forthcoming). If the user knows that she is not in the physical location (e.g. in the Botanical Gardens), then the experience should only invoke a mild sense of aura, or what we might call the 'memory of the aura' of these monuments. The absence of mediation, or the sense of being in another place, is not sufficient to constitute an experience of aura. In this case the user may feel that she is in a place other than the laboratory where her body is located, but she will know that the place is cyberspace, not the physical space of the gardens. She will know that there is no causal connection between the virtual space and the physical space of the monument, and therefore that the virtual space is not unique. There may nevertheless be some residual feeling of aura (some sense of 'distance, no matter how near'), if the visual fidelity and interactivity allow the user to imagine herself in (to project herself into) the physical location. The user might feel nostalgia for a true visit to the gardens, even if she has never been there. The BENOGO project suggests that it is possible to experience presence without experiencing a corresponding degree of aura. When we speak of 'presence' here, we mean the term as defined by computer science – the user's feeling of 'being there'. For Benjamin, however, the feeling of being there is only half the story: presence is inevitably connected to aura, because presence awakens the sense of distance and separation. That sense of separation is what Benjamin and media theory add to the discussion and is not recognized or accounted for in most virtual reality experiments.

Returning to the example of the Oakland Cemetery, we can see how even an apparently less-sophisticated media technology could generate a greater sense of aura than VR. Figure 1 is a black-and-white, late 19th-century photograph of the office at the Oakland Cemetery. Imagine that a subject were given a copy (on old paper) of this photograph. In that case the aura of the photograph would almost certainly be greater than a multimedia presentation or even a VR visit to the cemetery. The aura would depend on our culture's understanding of the status of analog photography. For decades, prior to the invention of digital techniques, our culture believed in the truth-value of photography, as William J. Mitchell argues in *The Reconfigured Eye* (1994). The analog photograph was supposed to be an objective record of the light that fell on the object at a given moment in the past. In this case, sunlight was reflected from the cemetery office onto a photographic plate. Later, but at a time still close to the event, the image was chemically transferred to the paper. So the paper that the viewer holds maintains the continuity in time and space with this unique location. Even today a viewer is likely to feel the aura of such a photograph not in spite of, but because of its poorer quality, which suggests the technology of that time and emphasizes the historical distance between the original object and the contemporary viewer. Benjamin argued that a daguerreotype, each of which was unique, maintained the aura that belonged to portrait painting. We would argue that a photographic print can share in the aura of the original by awakening the memory of aura, especially because of the causal relationship between the original and every print.¹⁰

FIGURE 1**Oakland Cemetery Office, 19th-Century Photograph**

Our AR experience in Oakland seeks to achieve aura through a different route, because the viewer knows that she is in the authentic physical location. The purpose of the mediated aspect of the experience (the digital graphics and sound) is not to establish continuity in time and space, which the viewer achieves simply by standing on the ground of the cemetery. The media experience works to heighten the viewer's awareness of the cemetery as a site for history. Although the video and sound elements are digitally reproduced, this combination of the physical and the virtual can take place only in one place, the cemetery itself.

Aura and Remediation

It is worth noting that Benjamin's three discussions of aura each concentrate on different media or media forms: on photography, on film, and on lyric poetry respectively. Each discussion treats a moment of transition from one set of representational practices to another, and each involves the tension between older and newer technologies. The 'Short History' examines the transition from portrait painting to the daguerreotype and then to non-auratic photography. The 'Work of Art' contrasts stage drama and film. And the last essay focuses on the changing nature of lyric poetry after Baudelaire, who was reacting against claims for the new technology of photography and industrialization in general.

In previous work in media theory, we have introduced the concept of 'remediation' to describe the interaction between older and newer media forms in a given cultural moment (Bolter and Grusin, 1999; Bolter, 2000). In their efforts to reach audiences with a new media form, designers or creators refashion practices that are already understood and appreciated by those audiences. Designers in any media form, old or new, are making a claim that their particular representational practices can provide an experience that is authentic or 'real'. New media designers 'remediate' earlier media in the sense that they borrow both representational practices from earlier media and claim to be improving on them. For example (to take the case that Benjamin examines in the 'Short History'), analog photography remediated portrait painting in the sense that it borrowed the economic and social functions as well as some compositional techniques. But photography also claimed to surpass portrait painting in the fidelity with which it could represent the subject – at least according to a definition of visual fidelity that photographers themselves promoted. (Those who continued to favor painting over photography argued just the opposite: that, unlike the camera, the artist could bring out the inner character of the subject.)¹¹ Similarly, (to take the case that Benjamin concentrated on in the 'Work of Art'), film remediated stage drama, borrowing from the practices of the stage in order to present a story through action and dialog. Film's claim to surpass drama was rooted in the techniques of editing, as Benjamin noted in his essay. In constructing a sequence of edited shots, the filmmaker frees the viewer's point of view from the fixed position that it occupies in the theatre.

We become aware of aura in art through a rivalry or interplay of new and traditional media forms. What Benjamin characterizes as the decay of aura in photography and film is simply an expression of this interplay in the late 19th and first half of the 20th centuries. For Benjamin, film's task was to denigrate the aura of drama by providing the reproducible experience and mobile point of view that drama could not, just as photography's task had been to denigrate the aura of painting. Marleen Stoessel points out that Benjamin first defined the idea of aura at the moment of its supposed decay (Stoessel, 1983: 15, 36).¹² This is not surprising. Aura as ritualistic awe may have belonged to art for hundreds or even thousands of years, but critics did not need to give a name to or describe this awe until it was called into question by reproductive technologies. Benjamin's descriptions of aura suggest an unacknowledged nostalgia, a desire for something lost and now unrecoverable. In a culture characterized by reproductive media technologies, the authentic, the unmediated, becomes unrecoverable.

There are two opposing strategies of representation that designers and artists employ in the remediation of media forms: transparency and hypermediacy. Either of these strategies can be used in any media form, although artists and designers in certain media and at certain times may favor one or the other. The strategy of transparency asks the viewer to forget the process of mediation and concentrate on the mediated content. Hypermediacy, on the other hand, emphasizes the mediated character of the experience. For example, a painting by the 18th-century Italian Canaletto, strives to be transparent, while most contemporary music videos are hypermediated. As we noted earlier, since its development in the 1910s, the Hollywood film has generally pursued the goal of transparency. The intended audience is not expected to be conscious of the moving camera and the edits; it is supposed to experience this way of viewing the action as 'natural' and to focus instead on the drama itself. On the other hand, the surrealist films of the 1920s

were hypermediated and required the viewer to reflect on the process of their own making. Unlike transparency, the strategy of hypermediacy is not totalizing: it welcomes multiple styles, even transparency itself. For example, the film *Time Code* divides the screen into four quadrants, each of which contains an unedited 'real-time' digital film. Although each quadrant pursues transparency, the film as a whole is hypermediated and reflective.

The interplay of these two strategies helps us understand the decay – as well as the constant revival – of aura within 20th-century media forms. The strategy of transparency aims to evoke aura in the viewer, while hypermediacy calls aura in question. This dichotomy holds even in film. The transparent style from Griffith's day to Benjamin's (and to ours) is auratic. The assumption behind the transparent style is that film can deliver an authentic experience to the viewer by capturing the aura (the reality, the 'here and now') of the characters, places, and situations. In his nature analogy, when Benjamin describes the aura of a natural location, he posits an unmediated relationship with nature. The transparent style in film or other media seeks to emulate that supposed immediacy – to bring viewers closer to the real by effacing the medium that interposes itself between them and the object of representation. Benjamin's nature analogy is heavy with nostalgia. Benjamin, an urban scholar of the 20th century, chooses to describe aura as a moment of communing with nature in the absence of any media technologies. When Benjamin calls aura a feeling of distance however near, he is not only describing a desire for immediacy; he is also acknowledging that that desire cannot be fulfilled in an age of mechanical reproduction. Because Benjamin's notion of aura already implies its own degeneration, it is classic nostalgia. Even when in the 1930s Benjamin had decided that film could be a new politically progressive art form, he could not dispense entirely with a romantic yearning for an immediacy that was supposed to exist prior to reproductive technologies. That same yearning is still expressed (in what Benjamin regarded as a debased form) in the transparent style of Hollywood film. By contrast, hypermediated representation in avant-garde film or other media, which has no pretense of immediacy, is not nostalgic; it shows no regret in making the viewer conscious of the process of representation and therefore the decay of aura.¹³

Two representational strategies existed in film in Benjamin's day and continue today. Film as a technology does not change human perception, as Benjamin suggests. Instead, various forms and styles of film, like other media forms, can be auratic or non-auratic. Although Benjamin argues that film is by nature reflective, we have already noted that he made an exception for the capitalist film industry – a very large exception, because in Benjamin's day the film industry (in Hollywood or Europe) accounted for most popular film, as it still does. Avant-garde film of the 1920s offered a critique of aura, and what it critiqued was the strategy of transparency of popular film forms.

There are degrees and kinds of critique that filmmakers can offer. There is the often playful critique of representational practice in Chaplin films: Benjamin argues that Chaplin's fragmented body motions interpret 'allegorically' the fragmentation that the camera itself makes possible (Hansen, 1987: 203). Benjamin claims that dada is the high art (anti-art) movement that anticipated the popular film of Chaplin, but dada's critique of the aura of high art is far more radical than Chaplin's critique of the transparency of film. Although Chaplin's style may have hypermediated elements, at the core of his films there remains an auratic sentimentality. Throughout its history film has offered a critique

of the decay of aura in other media while asserting its own ability to capture the authentic. For example, the common practice of making film versions of 'great literature' was an expression of both homage and critique. While acknowledging that these literary texts provided great stories, filmmakers were also suggesting that their films could retell these narratives in ways that made them more authentic, more accessible to a vast popular audience. For that audience, they were in effect reasserting, not destroying, the aura of these works.

The classic Hollywood film style was (and often remains) a representational system that diligently pursued the auratic, even if for Benjamin the result was a sham aura in comparison with the aura of oil painting or sculpture of earlier centuries. Perhaps the first major challenge to the aura of film came with television in the 1950s. This new medium implied that film could not achieve immediacy, because it lacked the key quality that television (of course) could provide: liveness. Although the two industries battled for their share of audiences and cultural status in the 1950s, their relationship stabilized relatively quickly, with each content to claim its own definition of immediacy (and aura).

In recent decades, both popular film and television have been increasingly willing to pursue strategies of hypermediacy as well as transparency. MTV music videos, as we have noted, are hypermediated. Romantic comedies and blockbuster fantasies (such as *Lord of the Rings*) are largely transparent, but popular films can also incorporate the styles of music videos or games (*Lara Croft*, *Tomb Raider*, *Mortal Kombat*, *Resident Evil* and so on) or can be intentionally self-referential (*The Matrix* series). The recent genre of computer graphic animated films (such as *Toy Story* and *Shrek*) combines generally realistic, three-dimensional graphics and continuity editing with quotations and parodies of various live-action films (and earlier animated films in their own series). This combination playfully calls into question the aura of live-action filmmaking. So-called 'reality TV' also manages to be transparent and hypermediated, self-referential and sentimental at the same time. In so doing it remediates and diminishes the aura of both the television soap opera and the film documentary. Contemporary popular media see no contradiction in pursuing the auratic and the non-auratic almost simultaneously; this eclectic attitude is perhaps a key characteristic of popular art and representation since Benjamin.

Aura has not definitively decayed in the age of mechanical and now electronic reproduction. Popular film and television indicate that our culture's desire for immediacy and therefore for auratic art remains strong. However, we can say that media forms throughout the 20th century seem to be predicated on the possibility (the opportunity and the danger) of the decay of aura. Media forms oscillate between offering a non-auratic, reflective experience and reasserting the importance of immediacy and aura. The moment of decay never ends because each media form is constantly comparing itself with other older and newer forms. Media forms are constantly calling into question each other's ability to represent the authentic, and these remediations raise the possibility of the decay of aura, the loss of authenticity of experience.

Aura has been in a permanent crisis since the introduction of mechanical technologies. When Benjamin drew attention to this crisis, he seems to have assumed that it would be resolved in favor of a non-auratic, politically aware cinema of the future. Instead, the desire for immediacy and for auratic experience has paradoxically survived in the face of increasing levels of mediation that digital technology makes possible. But this desire is now combined with a fascination with the processes of mediation that call

immediacy into question. The permanence of the crisis has helped to determine the ways in which media experiences are now received and interpreted by viewers. New media designers can, in fact must, exploit our culture's ambiguous attitude toward aura.

VR, AR, and Aura

In the past 10 or so years, digital media have begun to contribute to the crisis of aura among contemporary media forms. Although the whole range of digital media (including desktop applications such as the WWW and computer games) play a role, we have focused here on VR and AR. These two technologies in fact concentrate on different principal targets for remediation.

VR technology remediates film, in the sense that like film, VR provides an immersive environment for its viewer or user. If film can be either auratic or non-auratic, then VR can be as well. Most VR applications, however, are still strongly under the influence of the notion of transparency. As long as photorealism is its goal, VR is not trying (in Benjamin's terms) to reconfigure our perceptual system, but simply to recreate it in a virtual world. Some VR applications, such as the BENOGO project, explicitly aim for a kind of aura. On the other hand, a few digital artists, who have been working with VR for some time, do not make transparency their goal. In Jeffery Shaw's pioneering piece, *The Legible City* (1989), the user rides a bicycle and travels along city streets whose 'buildings' consist of gigantic, three-dimensional letters forming words and sentences. This is not transparent VR, nor is it auratic art.¹⁴ In *Dancing with the Virtual Dervish: Virtual Bodies*, Diane Gromala and Yakov Sharir (1994–9) created a heterogeneous VR environment that combined radiographs of the interior of Gromola's body with various texts. VR art pieces like these are reflective, because they reveal, rather than conceal, their own representational techniques.¹⁵

As hybrids, AR and MR remediate a number of forms, including stage drama as well as film. An AR experience at the Oakland Cemetery, for example, is more like a drama than a film, in the sense that the actors would appear to occupy the same physical space as does the user. Benjamin associated drama with aura, and the AR experience we have suggested for Oakland would seek to engage the aura of the cemetery, invoking the history of the place in order to emphasize its distance. But AR and MR experiences are never simply transparent, because each experience has two parts, one provided by the computer and one provided by the physical environment itself. For example, the voices or images of the characters in the Oakland Cemetery would be set against the background of its landscape and architecture. Such experiences provide the opportunity to evoke aura through the interplay between the physical and the virtual; one could imagine a range of AR/MR applications, some of which enhance the aura of a place, and some of which diminish it. Digital art points the way here. For many years, artists have been creating mixed reality experiences for exhibitions such as Ars Electronica and the SIGGRAPH Art Gallery. These pieces too call on the viewer to reflect on their own conditions of representation.¹⁶

In digital media, as in film and television, aura has become a design parameter. Designers can decide whether to cast a certain experience as auratic or not. In film and television the choice of genre usually determines whether to aim for aura. In digital media, because the genres are not as firmly established, each design requires a separate decision.

The presence or decay of aura is not, as Benjamin suggested, predetermined by the choice of media technology or by the dominant technologies of the time.

The final question to ask is: what does the presence or absence of aura mean for the political and ideological consequences of media technologies today? Benjamin believed that the new mode of perception brought about by film led not only to the decay of aura, but also to a new progressive art form. Although popular film has never fulfilled this potential, the permanent crisis of aura that began in the age of mechanical reproduction and continues with digital technology has had the effect of desacralizing aura. Many audiences may still prefer the experience of aura, but aura can no longer be regarded as the only possible goal. On the one hand, even popular forms in television and film sometimes offer reflective experiences; on the other, augmented reality can be used to enhance the aura of historical locations. What seems to have disappeared is not the desire for auratic experience, but the claim of auratic art to being the only legitimate style. Digital technology increases the options for designers and allows the invocation of aura in new ways. Yet if the pursuit of aura is a stylistic decision, then the rejection of aura no longer appears to make any particular political statement, which was Benjamin's ultimate hope.

Notes

- 1 The growing interest in MR applications is indicated by a recent special issue of *Communications of the ACM* (see Rosenbloom, 2004). A series on the ubiquity of sensor and video technology also appeared recently in 'Sensor Nation: Special Report', *IEEE Spectrum*, 41(7), July 2004.
- 2 Paul Dourish explains this paradigm in *Where the Action Is: The Foundations of Embodied Interaction* (2001). See also S. Harrison and P. Dourish (1996). The notion of ubiquitous computing goes back at least to Mark Weiser, 'The Computer of the 21st century' (1991). Examples of work in MR and AR that have contributed to the strategy of situated interaction include: S. Feiner et al., 'Knowledge-based Augmented Reality' (1993); H. Ishii and B. Ullmer, 'Tangible Bits: Towards Seamless Interfaces between People, Bits and Atoms' (1997); P.M. Aoki et al., 'Sotto Voce: Exploring the Interplay of Conversation and Mobile Audio Spaces' (2002); O. Bimber et al., 'Merging Fossil Specimens with Computer-Generated Information' (2002); and T. Hollerer et al., 'Situated Documentaries: Embedding Multimedia Presentations in the Real World' (1999).
- 3 The essay was originally published in 1931 as 'Kleine Geschichte der Photographie'. For the German, see *Walter Benjamin: Gesammelte Schriften*, edited by Rolf Tiedemann and Hermann Schweppenhäuser, vol. II, 1 (1972 onwards), pp. 368–85. For a summary and important analysis of this and the other key aura passages, see Marleen Stoessel, *Aura, Das Vergessene Menschliche: Zur Sprache und Erfahrung bei Walter Benjamin* (1983).
- 4 'The Work of Art . . .' was first published in a French edition in 1935, posthumously in two versions in German. For the German versions, see *Gesammelte Schriften*, vol. I, 2, pp. 431–508.
- 5 For the relationship to Jewish thought, see Miriam Hansen, 'Benjamin, Cinema, and Experience: The Blue Flower in the Land of Technology' (1987). See also Stoessel (1983: *passim*).
- 6 The German phrase (in both the 'Short History' and the 'Work of Art') is: '*einmalige Erscheinung einer Ferne, so nah sie sein mag*'. The German word *Erscheinung*, like the English 'appearance', could refer to a psychological state (how something appears to a subject) or to an objective condition (how something 'naturally' appears). That ambiguity reflects Benjamin's ambivalence toward the status of aura (in the mind or in the world).
- 7 For substantially different interpretations of Benjamin's concept of aura, see Robert Kaufman, 'Aura Still' (2002) and Miriam Hansen (1987: 190). Both seem to interpret aura as a kind of critical distance and would likely disagree with the close relationship that we draw between aura and the desire for immediacy and authenticity in art and popular entertainment. Both think that aura could survive in 20th-century film and poetry, but for reasons very different from those that we suggest. Kaufman argues for a kind of 'critical aura', which Adorno and perhaps even Benjamin believed to be possible in modern art. Neither Kaufman nor Hansen discusses the aura of digital media.

- 8 For example, B. Witmer and M. Singer, 'Measuring Presence in Virtual Environments: A Presence Questionnaire' (1998). Questions such as the following are asked of subjects after they have completed the VR experience: 'How natural did your interactions with the environment seem?' 'How completely were all of your senses engaged?' 'How aware were you of the events occurring in the real world around you?' The subjects answer on a scale (from 'not at all' to 'very much'). The use of questionnaires has itself been questioned, most recently by Mel Slater in 'How Colorful was Your Day? Why Questionnaires Cannot Assess Presence in Virtual Environments' (2004). A comparative media approach to presence is provided by Tim Marsh, 'Presence as Experience: Film Informing Ways of Staying There' (2003).
- 9 See also Michael Meehan, Brent Insko, Mary Whitton and Frederick P. Brooks, Jr. 'Physiological Measures of Presence in Virtual Environments', (TR01-009) Chapel Hill: University of North Carolina.
- 10 As late as the 1970s, Roland Barthes acknowledged analog photography's sense of distance-however-near, when he observed in *Camera Lucida* that every photograph carries with it an intimation of that which is unrecoverably past, of death (Barthes, 1981).
- 11 For essays that exemplify these debates, see Alan Trachtenberg, 1980.
- 12 A similar point was made by Boris Groys in 'Die Geburt der Aura. Variationen über ein Thema Walter Benjamins' (2000).
- 13 Hansen takes a different view in explaining this passage and Benjamin's notion of how aura relates to experience on the one hand and film technology on the other. For her, a key aspect of aura is how it invests objects with their capacity to return our gaze (1987: 187–8 and *passim*).
- 14 See the description of *The Legible City* on the jeffrey-shaw.net web site (Shaw, 1989).
- 15 See the description of the Dervish on the gatech.edu web site (Gromala and Sharir, 1994–9).
- 16 For descriptions of several key pieces in the SIGGRAPH 2000 Gallery, see Jay David Bolter and Diane Gromala, *Windows and Mirrors: Interaction Design, Digital Art, and the Myth of Transparency* (2003).

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