

Mediating Presence: Virtual Reality and Other Caves

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ABSTRACT (ENGLISH)

This critical essay meditates on the interchangeable perceptual metaphors of virtual reality and the cave. The technological apparatus of virtual reality stages a return to the promise and the prison of the cave, where the images of the ancient past are reconstituted in the name of the eternal present. The cave is equally symbolic of the origins of visual representation, and more specifically - as Werner Herzog's *Cave of Forgotten Dreams* (2010) demonstrates - the cinema, as it is of the origins of cinema studies, now more widely addressed as media studies. Virtual reconstructions of Chauvet, Lascaux, ancient tombs and crumbling monuments, digitally preserve and mediate with unrivaled accuracy proto-cinematic visual archives and monumental sites of memorialization. The virtual architectures of presence they establish serve in part the empirical nostalgia of the Western imagination. These reconstructions of the subterranean, the ancient, and the repressed insist on the institutional structures of remembering constituted by the museum, the cinema, and, now, virtual reality and its caves. Virtual reality evokes the metaphor of the cave both in form - through head-mounted display and Automatic Virtual Environments - and representation, as in Benjamin Britton's virtual installation *LASCAUX* (1995). The prosthetic apparatus of virtual reality grafts the image of the past onto the head of its participants, transforming the head into a multivariate archive of images, its own preservative cave. The virtual archaeology they enable assumes mastery over the prehistoric past and, in universities and museums around the world, returns to the subterranean as a site of institutional knowledge production. Inasmuch as the GIS point cloud of Chauvet accurately conforms to its referent in lieu of durational reality, the "accuracy" of the paintings is equally the dismissal of their realism.

FULL TEXT

Headnote

Abstract

This critical essay meditates on the interchangeable perceptual metaphors of virtual reality and the cave. The technological apparatus of virtual reality stages a return to the promise and the prison of the cave, where the images of the ancient past are reconstituted in the name of the eternal present. The cave is equally symbolic of the origins of visual representation, and more specifically - as Werner Herzog's *Cave of Forgotten Dreams* (2010) demonstrates - the cinema, as it is of the origins of cinema studies, now more widely addressed as media studies. Virtual reconstructions of Chauvet, Lascaux, ancient tombs and crumbling monuments, digitally preserve and mediate with unrivaled accuracy proto-cinematic visual archives and monumental sites of memorialization. The virtual architectures of presence they establish serve in part the empirical nostalgia of the Western imagination. These reconstructions of the subterranean, the ancient, and the repressed insist on the institutional structures of remembering constituted by the museum, the cinema, and, now, virtual reality and its caves. Virtual reality evokes the metaphor of the cave both in form - through head-mounted display and Automatic Virtual Environments - and representation, as in Benjamin Britton's virtual installation *LASCAUX* (1995). The cave is examined as a site of reversion and reversibility, where the two paradigms most responsible for digging up the past, psychoanalysis and archaeology, switch places in order to more clearly get a look at the present. The prosthetic apparatus of virtual reality grafts the image of the past onto the head of its participants, transforming the head into a multivariate archive of images, its own preservative cave. In the cave of the head-image, memory traces project shadows of the

past on the walls, storing them safely underground, returning them to the preconscious, the proto-cinematic, where their presence exists at a permanent distance. For material and natural histories facing degradation or marked for annihilation, virtual reality provides refuge, a cave storing totally realized images of the past that can attest to our own presence of being.

One constantly returns to the scene of the cave: real presence or impression of presence.¹ Virtual, augmented, hyper, mixed. To return to the return to the cave - to reconstruct the cave in order to bring it to mind. From Plato to Freud to Baudry to wherever it is we find ourselves today, perspective loses its fixity and succumbs irreversibly to reversibility. The memory of film studies does not go back that far, but it does remember the cave, its promise and its prison. It is a space of origin to which we return, not to escape the cave, not to reveal the illusion of the escape, but to decorate. The cave has never looked so homely. By today's standards the cave and its dual metaphor - as natural as the earth that gives it shape, as artificial as the shadows on its walls - seem quaint. It is a place that contains the memory of a cinema before virtualization, before remediation, a cinema (studies) that may have never been invented in the first place. Excavating the cave with ever-more-accurate tools of interpretation recapitulates this genesis in order to usher in a new era of redundancy, of virtual reality.

In Werner Herzog's *Cave of Forgotten Dreams* (2010), the famed documentarían and filmmaker explores the Chauvet Cave in southern France with unrivaled access. Home to some of the most well-preserved prehistoric cave paintings dating back 30,000 years, the caves not only fulfill, for Herzog, a kind of French continental imagination that links the earliest known forms of visual representation to the inception of the cinema, but contain potential realities now 'out of sight', 'subterranean', thus 'forgotten'. In addition to filming the caves stereoscopically in order to more accurately replicate them, Herzog borrows a GIS point cloud visualization from archaeological researchers to speculate about what it means to mediate the presence of the cave (Figure 1). The accuracy of the laser-scanned GIS point cloud, where "the position of every feature in the cave is known" using 527,000 individual spatial data coordinates, belies the emergent, dreamlike quality of a buried and "preconscious" visual presence. The cave incites another display of reversibility: the filmmaker-analyst becomes an archaeologist attempting to accurately image the present of the past, while the archaeologist assumes the role of analyst. Despite the accuracy of his scan, archeologist Julien Monney acknowledges its inability to make present anything but the model itself; "we will never reconstruct the past," Monney says, we can only imagine the stories that each point may tell, half-a-million virtual realities that picture an unknowable "dream" of the past. The film identifies a common ground for the reversed perspectives of archaeology and psychoanalysis in the virtual cave and its oscillation between revealing and concealing.

What the perpetually "new" medium of virtual reality reveals is counterbalanced by the concealed temporality of the past. Its capacity to trigger in its users the sense of "presence" lends VR a special affinity with the cave. Photogrammetric and GIS recreations - visual archives themselves - return us to Chauvet, to Lascaux, to Egyptian tombs as sites of ancient memory. The virtual archaeology they enable assumes mastery over the prehistoric past and, in universities and museums around the world, returns to the subterranean as a site of institutional knowledge production. Like its cinematic predecessor, the virtual reality dispositif returns us to the preconscious of visual representation, a CAVE that envelops the entirety of the subject and one grafted to the brain. For virtual reality's Head-Mounted Display, the head is also a cave, a cave of the first order, a cave where memories are projected, creating their own virtual reality that runs simultaneous to the present. Virtual reconstructions of the past are uniquely literal acts of nostalgic mediation; the virtual realities they create are static evocations of an idealized presence.

Insofar as memory consists of a rush of past experience that overtakes the present, it can be said to establish a mimetic relationship with the presence-effect achieved by consciousness. The most powerful memories can be "re-lived", experienced "live" once again. The presence ascribed to virtual reality equally expresses an im-mediacy, but with the added feature of its technological apparatus, mimesis is transformed into prosthesis. VR achieves its own mnemonic fidelity through technological means. To this end, it may interpret an affirmation by Svetlana Boym as a kind of challenge: "Nostalgia is about the virtual reality of human consciousness that cannot be captured even

by the most advanced technological gadgets."2

In her dazzling treatise on the function of nostalgia after the End of History, Boym uses the paradigm of virtual reality to describe "a dual archaeology of memory and of place."3 She distinguishes between restorative nostalgia and reflective nostalgia through chiasmus: the former spatializes time, the latter temporalizes space. Restorative nostalgia, as the name indicates, attempts to regain in the present something lost in the past. "The past for the restorative nostalgic is a value for the present; the past is not a duration but a perfect snapshot...", she writes.4 Like the restorative nostalgic, Herzog attempts to picture something lost to history, something beyond interpretation, by utilizing "post-cinematic" visualizations, unearthing, as he calls it, the "proto-cinematic" reality of the Chauvet cave paintings. Herzog imagines the play of light on the bulging surfaces of the paintings as a cinematic origin; the ancients were already thinking in composites, as they depict the animals they saw with multiple static positions overlapping one another in order to simulate movement within space. The effect is a kind of chronopictorial *durée* akin to Marcel Duchamp or the photographic experiments of Étienne-Jules Marey, prefigurations of the cinema. Inasmuch as the GIS point cloud of Chauvet accurately conforms to its referent in lieu of durational reality, the "accuracy" of the paintings is equally the dismissal of their realism. Thus, Herzog ascribes the weight of visual accuracy to the laserscanned model with a caveat, that as a post-cinematic virtual visualization it doesn't capture the passing of the present so much as it eternalizes the past.

The restorative tendencies of virtual heritage and 'historical' virtual models are hinged on their omittance of *durée*, instead enacting an aortic temporality, as Roland Barthes says; like the photograph, or archaeology itself, they write the past out of history.5 Their grammatical tense is not the perfect tense of memory - as in reflective nostalgia - but the "aorist" tense, where the action, perhaps a final ruination, is never completed. The monumentality of the real is replaced by the libidinal expressions of primarily a Western technocracy desperately attempting to preserve what it is about to massacre.

Three-dimensional virtual reconstructions seize upon the memory by remembering for us. Depictions of World Heritage, the Old World, even natural landscapes now facing utter erasure, are ironically re-presented for cosmopolitan Western sensibilities by maintaining their distance. This nostalgia is "...enamored of distance, not of the referent itself...", says Boym, where "...the home is in ruins or, on the contrary, has been just renovated and gentrified beyond recognition."6 Virtual memories of this kind aid the "reestablishment of stasis", that is, the empirical nostalgia of the Western imagination.7 Returning to the cave, a primordial home, newly exhibited in all its 3D glory, counter-intuitively enforces the distance between its past and my present. The presence of the cave, something forgotten, remains safely below the surface.

Cave of Forgotten Dreams evokes virtual reality to make the connection between the human desire to externally represent a shared historical reality and the increasingly accurate systems of visualization used to that end. The 'subject' of the film - the Chauvet Cave - is metaphorically cast as a literal point of historical origin and the very possibility of making present what has already past. The Cave similarly operates as a site of conflation, where archaeology and psychoanalysis become commiserate visual practices of 'digging up' the past. History here takes the form of a 'forgotten dream', re-presented by a virtualizing technology that actively shares in the production of the past. The visual register of the Cave communicates the past in terms of the repressed image, which then gets uncovered, unearthed, by archaeologists and psychoanalysts, "both types of diggers-up of the past [who] have a strong wish to see it".8 The film suggests, contradistinctive to the post-human accuracy of its idealized truth claim, that VR dreams of the past with much the same errings as the human mind, with the same gaps, misdirections, false starts, and symbolic overdetermination.

As its own paradigm of mediation, virtual reality has developed a unique recourse to the past (another return, another recall). Near to the axiomatics of sociotechnological potential, it signals the future of mediating technology by way of virtualizing both the past and the past yet to come through historical simulations and reconstructions. Its act of mediation is rhetorically joined to the experiential accuracy of its digital memory and the illusive sense of presence it induces. Yet despite decades of development and a general public fascination, virtual reality itself remains in a state of potential where, as Jamie Mcroberts points out, "... a comprehensive explanatory

theory of presence has yet to emerge."9 As those in the "field continue to grapple with the polysemantics of presence," a glut of complementary expositions has fortified the discourse.10 Beginning in the late 1980s and early 1990s, formative studies of researchers like Mel Slater married the behavioral sciences and computer engineering to produce qualitative indicators for virtual presence,11 while more recent popular press accounts attempt to detail the functionality of mediated presence and where it might be headed.12 The philosophical charge of the term complicates the issue further. The rise of photographic representation in the 19th and 20th centuries coincides with a turn toward the virtual as a key concept in understanding presence. Continental philosophy has been especially keen, describing presence, for example, as the subjective interpretation of temporal *durée* (Henri Bergson), as an ontological determinative of being (Martin Heidegger), or, in a point of critique, as a (Western) philosophical determinative itself (Jacques Derrida). Contemporary thinkers like Thomas Metzinger continue to utilize the problematic of virtual reality to describe the ontology of the subject and perceptual remove.

For virtual reality developers, achieving an effect of presence translates to the memorialization of the known past. In order to lay claim to the present, virtual reality preoccupies itself with the past. While 360-degree news documentaries and near-histories are meant to immerse their user-viewers in the history of now, an abundance of historical simulations replaying the critical moments of the 20th century make (newly) visible the historical problematic of a shifting liberalism. In 1979 *Revolution* (Khonsari, 2015), 1943: *Berlin Blitz* (BBC, 2018), and *Traveling While Black* (Nadarajah, Lajeunesse, Raphael, and Williams, 2019), presence becomes a political imperative, restaging the debates over visual representation's capacity for political mimesis. Moreover, in reconstituting the sites of an even more distant past, 3D virtual reconstructions position the act of digital archiving as a cultural if not political necessity. Buried histories are of special import; those memories that remain inaccessible, out of sight, and forgotten provide a testing ground for ever-advancing systems of virtual display. On exhibit at Epcot Center in 1996, *Nefertari: Light of Egypt* digitally recreated the famous tomb "... to demonstrate...the power of new high-end systems" of virtual heritage.13 Likewise, in 2018, *Nefertari: Journey to Eternity (A Tombscale VR Experience)* (ExperiusVR) returns to the tomb to express with photoreal precision the navigability of the prehistoric virtual archive (Figure 2).

In these experiences, the space of the tomb is equated to the space within one's head, the images it conjures retrieved from the unconscious of collective memory. The HMD is envisioned as a kind of prosthetic head that affixes its users to the past (Figure 3). The subterranean architectures it realizes are grafted to the individual in counterdistinction to Plato's Cave, where "... perception is not private but public."14 The effect of a personalized museum indicates the current slippage between public archive and private memory. Re-discovering prehistoric tombs and caves as mediating sites of the past, virtual reality provides incentive for current historical practice and new (digital) forms of musealization. Their spaces signify not only a process of historical forgetting but the precarity of memory and thus the need to more accurately and permanently record them. "The critical issue in reconstructing historical sites is to build accurate models based on the available historical information."15 This provides opportunity for sites that currently exist but face destruction or demolition.

...For example, there is a gorgeous natural formation in Alabama, called Cathedral Cavern. For safety reasons, the local government has decided to fill it in with sand before it collapses. In anticipation of the demolition, scientists have used 3-D laser scanners and photographs in order to create a virtual model of the cave, preserving the experience for future generations, who will be able to experience the cave through immersive displays housed in museums.16

The imagined permanence of the museum and its air of officiality make it an appropriate fit for the preservation of historical monuments and natural formations earmarked for obsolescence or, in some cases, annihilation. Treated as interchangeable perceptual metaphors, The Cave and virtual reality are expressed as mirror images each reflecting the virtual architecture of presence. As a site of tension between the conscious mind and the unconscious, between actual presence and the illusory virtual nearness' perception affords, the Cave is a longstanding rhetorical anchor for the virtual reality apparatus. Benjamin Britton's *LASCAUX*, first exhibited at the 1995 Kwang-Ju Biennale in Kwang-Ju, Korea, recreated the space of the cave by setting up monitors in semi-

surround depicting its famous paintings of prehistoric bulls and horses (Figure 4). Also viewable through a head-mounted display, LASCAUX traveled the world as an art installation and was modified for a VR CAVE system in 1996. A cave within a CAVE, LASCAUX becomes synecdoche for the larger apparatus of institutional memory in which it is installed and for which it becomes example. As installation, the virtual cave gains legitimacy as part ancient art exhibit, part scientific curiosity. The seriousness of its content is buttressed by the accuracy of its simulation, and the pre-visualization suggested by its digital imagery gives cause for its speculative implementation. As WJT Mitchell indicates, "Digital imaging and virtual-reality caves provide the ideal sales environment for architecture...", implicating not just the predations of real estate but the architectures of memory erected in equal parts by the museum, and by the cave.¹⁷

On showcase at SIGGRAPH 1992, researchers from the Electronic Visualization Laboratory at the University of Illinois at Chicago presented The CAVE: Audio-Visual Experience Automatic Virtual Environment, or, CAVE for short. Meant as "a recursive acronym...also reminiscent of Plato's allegory of the cave," the CAVE is an alternative to head-mounted virtual reality displays.¹⁸ In the hopes of demarcating virtual reality as "a serious visualization tool," the mission of the CAVE is to be as non-intrusive in the mediated experience as possible.¹⁹ The system includes a small room where user-viewers stand; four projectors beam stereographic images on each surface of the room. User-viewers are equipped with 3D glasses that parse the stereographic images and allow user motion to be tracked via an "Isotrack" transmitter. While certainly not perfect, the highly technical apparatus is meant to more comfortably and accurately "override the user's senses," to ideally replicate and replace the sensory input-output functions of the brain.²⁰ Naturally the system creators point to applications that effectively utilize the CAVE as a kind of brain-space simulator, where external image-information is viewed, categorized, catalogued, and certain real-world scenarios are safely simulated. Only "serious" implementations are considered, including the surveillance of regional weather systems, the modeling of biological macromolecules, and, in a gesture of *mise-en-abyme*, simulated brain surgery.²¹ The CAVE not only imagines the head or specifically the brain as a kind of control center that determines our relationship to reality, but it externalizes the head-image - "...the dark, cavernous image that one has about the inside of one's head..." - in a bid to visually express the unconscious of the user.²² In his meditation on the case of the Lascaux caves, which have undergone a comparable procedure to Chauvet of both digitized and scalemodel replication, Georges Bataille, like Herzog, recognizes in the archaeological site a protocinematic art museum. For Bataille, Lascaux is animated by multiple metaphors of seeing, unearthing, and therefore the 'making present' of something otherwise out of sight, underground, and essentially distant. "At Lascaux," he writes, "more troubling even than the deep descent into the earth, what preys upon and transfixes us is the vision, present before our very eyes, of all that is most remote."²³ The cave itself is figured as a virtual space, where the animalian "strangeness" of the paintings and the impossible temporal distance that separates them from the experience of the present signals "the first sign" of our own being, "of our presence in the real world."²⁴ Unlike a modern museum, with all of its ordered images and "neat rows" of ancient instruments, "In underground Lascaux we are assailed by that same feeling of presence-of clear and burning presence-which works of art from no matter what period have always excited in us."²⁵

Like Bataille, Bertram Lewin regards the cave of Lascaux as a kind of simulacrum of presence, where the reality of one's mind contained within one's mind is tested against its own capacity for visual representation. He writes, "...I suggest that the cave of Lascaux portrayed the head, particularly the visually receptive head image. It was an externalized replica of the internal cephalic image, where our 'pictures' are stored and concealed."²⁶ The dazzling paintings that line the walls of Chauvet and Lascaux help one to "test the reality" in one's mind against its representation.²⁷ This process amounts to a virtual presencing, a dream-like double image that showcases both reality and its projection on the walls of the mind. As a metaphor of the dreaming mind, the Cave contains von oben visual material, "content...very near to consciousness, which an analyst finds lacking in interpretative leads, but which the dreamer himself could translate easily."²⁸ Much the same way the unconscious is imagined as a storage place for memory traces, repressed moments of past experience expressed in the dream-state, "...the suggestion is strong that the cave was some kind of archives, a store of visual images."²⁹ Accessing these

archives is equally an act of archaeological preservation and psychoanalytic reconstruction. Ironically, however, visually restoring historical reality using the dual metaphor of the Cave enacts its own brand of ruination, where the psychotherapeutic unearthing of forgotten or repressed images results in their 'crumbling'. The 'living images' of the past are turned ruinous by their virtual replication, as their image itself has come to demarcate the repressed, as in, the crumbling of the monumental, cavernous past.

What is suggested by the Cave's preservative anatomy is the virtual vitalism of the images it stores. Its paintings are 'well-preserved' because they are imbued with the potential to 'come (back) to life'. This embryonal stasis is positioned in response and juxtaposition to the possibility of the destruction of the paintings, either by way of an elemental degradation or as victims of vandalism, iconoclasm, or the general wear of outside intervention. Their precarity provides good reason for their preservation, which entails a repeated return to the cave. Curiously, the vitality of the paintings has less to do with the presence they afford than their potential destruction. "The destruction of images, as Michael Taussig has argued, is a sure way of guaranteeing them an even more potent presence in memory, or as reincarnated in new forms."³⁰ To preserve them in our memory as ancient images attesting to our own presence of being, the possibility of their 'coming to life' must remain a possibility only. What helps install these images and their presence more permanently in our minds is their repeated destruction, only to return with each iteration of a cinema not yet invented, grander and stranger than before. The return to the cave makes their images 'come back to life', revenant, creating a teleology of return, recall, repetition. A repeated return to the scene of the cave instantiates, as in the Tomb of Nefertari, a repetition of its images, the same repetition suggested by the cinema itself, by the repeated sessions of psychoanalytic therapy and the repeated motion of digging something up. In anticipation of losing the image and therefore the presence of the past it contains, we dig it up only to bury it again; like a dog with a bone, it's enough to preserve it, to keep it in a state of virtual reality. Jake Bohrod is a PhD candidate and Annenberg Fellow in the Cinema and Media Studies department at the University of Southern California's School of Cinematic Arts. His dissertation is titled "Virtual Documentary: the Virtual Real and Its Rhetorical Legitimations," and it examines the overlapping truth claims of virtual reality and nonfiction media. His areas of interest include interactive and new media, media praxis, and documentary rhetoric.

Footnote

Notes

1 This introduction is modeled after that featured in Jean-Louis Baudry, "The Apparatus", *Camera Obscura* 1 (1976): 104.

2 Svetlana Boym, *The Future of Nostalgia* (New York: Basic Books, 2001): 351.

3 Ibid, xviii.

4 Ibid. 49.

5 Roland Barthes, *Camera Obscura: Reflections on Photography* (New York: Hill and Wang, 1981): 91.

6 Svetlana Boym, *The Future of Nostalgia* (New York: Basic Books, 2001): 50.

7 Ibid. 49.

8 Bertram Lewin, *The Image and the Past* (New York: International Universities Press, 1968): 17

9 Jamie Mcroberts, "Are We There yet? Media Content and Sense of Presence in Non-Fiction Virtual Reality," *Studies in Documentary Film* 12, no. 2 (2018): 3.

10 Ibid.

11 See Mel Slater, "A Note on Presence Terminology," *Presence Connect* 3 (2003), and Mel Slater and Martin Usoh, "Presence in Immersive Virtual Environments," in *Proceedings of the IEEE Conference - Virtual Reality Annual International Symposium* (1993).

12 See Peter Rubin, *Future Presence: How Virtual Reality Is Changing Human Connection, Intimacy, and the Limits of Ordinary Life* (New York: HarperCollins Publishers, 2018).

13 Donald Sanders, "A Brief History of Virtual Heritage," in *Picturing the Past: Imaging and Imagining the Ancient Middle East*, eds. Jack Green, Emily Teeter, and John Larson (Chicago: The Oriental Institute of the University of Chicago, 2012): 96.

- 14 Nathan Andersen, *Shadow Philosophy: Plato ? Cave and Cinema* (New York: Routledge, 2014): 42.
- 15 Jim Blascovich, *Infinite Reality: Avatars, Eternal Life, New Worlds, and the Dawn of the Virtual Revolution* (New York: William Morrow, 2011): 222.
- 16 Ibid. 222-223.
- 17 WJT Mitchell, *Image Science: Iconology, Visual Culture, and Media Aesthetics* (Chicago: The University of Chicago Press, 2015): 146.
- 18 Carolina Cruz-Neira, Daniel J. Sandin, Thomas A. DeFanti, Robert V. Kenyon, and John C. Hart, "The CAVE: Audio Visual Experience Automatic Virtual Environment," *Commun. ACM* 35, no. 6 (June 1992): 67.
- 19 Ibid. 65.
- 20 Ibid.
- 21 Ibid. 71.
- 22 Bertram Lewin, *The Image and the Past* (New York: International Universities Press, 1968): 37, his emphasis.
- 23 Georges Bataille, *Prehistoric Painting: Lascaux, or, The Birth of Art*, translated by Austryn Wainhouse (Geneva: Skira, 1955): 11.
- 24 Ibid., his emphasis.
- 25 Ibid. 12.
- 26 Bertram Lewin, *The Image and the Past* (New York: International Universities Press, 1968): 39.
- 27 Ibid. 62.
- 28 Ibid. 41.
- 29 Ibid. 37.
- 30 WJT Mitchell, *Image Science: Iconology, Visual Culture, and Media Aesthetics* (Chicago: The University of Chicago Press, 2015): 32. See Michael Taussig, *Defacement: Public Secrecy and the Labor of the Negative* (Stanford, CA.: Stanford University Press, 1999).

DETAILS

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