Design at the Border

Liminality, the Virtual, and Interior Transformation from Antiquity to Mixed Reality

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Introduction

This chapter introduces elements of "liminal design," defined across historical and contemporary works as design that provides the "participant," "passer-by," or "pilgrim" with the potential of transformational experience via the liminal or betwixt/between. Drawing connections between theory, history, and practice in mixed realities and liminality, we are pursuing an emergent typology of liminal design abstracted from analysis of a trans-historical group of works that illuminates aspects of the ancient and medieval heritage of contemporary mixed reality (MR) technologies. This chapter is part of a larger ongoing project comparing examples of liminal design from the Middle Ages and contemporary mixed reality, which we begin here with three examples selected for the ways they resonate across many characteristics with the concept of the border. The works to be discussed in this text include Qal'at Sim'an, the martyrium and cult site of Saint Simeon the Stylite, and associated objects (5th century, Syria); *Border Memorial*: *Frontera de los Muertos* (2012, John Craig Freeman); and *Abraham Lincoln: War Veterans Project* (2012, Krzysztof Wodiczko).

While bringing a work from the early Middle Ages into conversation with contemporary MR works may seem quixotic, we find this transhistorical approach useful in overcoming the seduction offered by hyperbolic commentary on the purported newness of MR technologies' effects today.[1] Comparative historical analysis indicates that similarly complex effects were achieved by works of art and architecture in past contexts where creators and users sought to challenge the limits of spatial, social, and spiritual experience and achieve liminal transformation. Aligning these works from markedly different periods, contexts, and cultures can allow us to situate them along a continuum that emphasizes continuity in human approaches to the virtual as well as provides a more nuanced discussion of their differences.

Our approach is in the tradition of other media archaeologists who also find value in careful comparative exploration of today's new media in much older historical contexts.[2] Here we focus on two works of MR from 2012[3] during a formative moment in the medium's development, which

1. Examples of narratives that exaggerate the newness of MR technologies include M. Pell, *Envisioning Holograms: Design Breakthrough Experiences for Mixed Reality* (Woodinville, WA: Apress, 2017); Michael Gourlay, "Surprising Ways Mixed Reality Will Empower Us to Achieve More," in *FDG: Foundations of Digital Games* Conference, August 15, 2017; Kayla Kinnunen, "Microsoft's HoloLens and the Future of Human Computer Interaction," in *EMPAC: Experimental Media Performing Arts Center*, November 1, 2017; Helen Papagiannis, *Augmented Human: How Technology is Shaping the New Reality* (Sebastopol, CA: O'Reilly Media, 2017); and David Rose, *SuperSight: What Augmented Reality Means for Our Lives, Our Work, and the Way We Imagine the Future* (Dallas, TX: BenBella Books, 2021).
2. See Errki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles* (Cambridge and London: The MIT Press, 2013); Errki Huhtamo and Jussi Parikka, eds., *Media Archaeology: Approaches, Applications, and Implications* (Berkeley and Los Angeles: University of California Press, 2011); Siegfried Zielinski, *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means* (Cambridge and London: The MIT Press, 2006); Oliver Grau, *Virtual Art: From Illusion to Immersion* (Cambridge and London: The MIT Press, 2003); Alison Griffiths, "Sensual Vision: 3-D, Medieval Art, and the Cinematic Imaginary," *Film Criticism* 37/38, no. 3/1 (2013): 60–85; Alison Griffiths, *Shivers down your Spine: Cinema, Museums, and the Immersive View* (New York: Columbia University Press, 2008); and Lisa Gitelman and Geoffrey B. Pingree, eds., *New Media, 1740–1915* (Cambridge and London: The MIT Press, 2003).
3. 2012 was an interesting moment in the development of MR technologies, prior to encroachment from larger corporations. Mobile AR (on smartphones) reached a wider creative audience of makers and players with the 2011 launch of AR authoring tools LayAR and Aurasma, and Blippar in 2012. The AR game *Ingress* (precursor to 2016's *Pokémon GO*) was launched in 2012 as well. This wide variety of tools has since narrowed, as the field begins to leave its attraction phase today with larger companies such as

can be understood as a "media of attraction" phase.[4] Artifacts created in the attraction phase predate institutionalization of the media and exhibit a wide range of exuberant, experimental strategies that often draw on other traditions and techniques. Because media created during these early phases are often poorly documented and little understood, they are commonly infantilized by later theorists as unfinished or somehow lesser examples than works created during the later phase of media institutionalization and eventual canonization. In contrast with this normative approach, according to a biological model of development privileging later stages, we find value in examining media in the attraction phase, not least due to the common quality of designs in this phase, in which seams between modes of representation and intermedial elements are often exposed. This exposure can help in identifying both threads of connection and elements of rupture between media technologies and techniques of the past and present.

In her examination of medieval relics and 3-D cinema, Alison Griffiths notes that the experiences of each "are linked by their shared liminality and immanence, a dissolution of space and mental boundaries separating the earthly from the unearthly."[5] We see a similar connection across our set of examples, which bridges the earlier period of late antiquity or the early medieval with contemporary mixed reality technologies. While the rhetoric of three dimensionality is in play in our examples in different instantiations than in Griffiths's, we also find the quality of boundary-breaking liminality to be of note. Griffiths weaves together many threads of connection between her medieval and contemporary objects of inquiry, but she is careful to note key differences in their cultural function and reception: "In our image saturated twenty-first century, 3-D protocols can take us out of the mundane and into the realm of the pseudo-spiritual

Apple and Google providing proprietary software development kits for AR. Similarly, in 2010 the Kinect was launched, available for purchase separately from the Xbox, making it a relatively affordable option in terms of computer vision solution for projection mapping, leading to its uptake by artists for expressive work.

4. Rebecca Rouse, "Media of Attraction: A Media Archeology Approach to Panoramas, Kinematography, Mixed Reality and Beyond," *International Conference on Interactive Digital Storytelling* (Cham, Switzerland: Springer 2016), 97–107.
5. Griffiths, "Sensual Vision," 67.

. . . capable of triggering states of reverie, sublimity, or existential musings on our place in the universe, sensations that bind us emotionally to our medieval ancestors, even if their investments were devoutly Christian."[6] Similarly, while we work in this chapter to uncover similarities across disparate time periods and cultural contexts, we also highlight distinctions between artifacts due to deep social and cultural differences, distinct material affordances, and the limits of historical research regarding reception. We do not claim that examples from antiquity are the same as those created with MR today. Rather, there are threads of connection between the two traditions that are worthy of exploration to help designers today understand how their work is at least partly continuous with what has come before, and conversely, to help historians today see how what is studied from the past is re-fashioned and re-made in present contexts.

In examining our three examples, we situate the virtual not in a particular technology or technological imaginary, but rather at the "limen," or threshold. This limen is not necessarily architectural (although it can be); instead, it is deeply embedded within the psyche of the interactor, meaning we situate the experience of virtuality as linked to interiority. Liminal space allows access to a virtuality that lies beyond the everyday: in this case not necessarily a digital illusion but a very real "other" that provides interior transformational possibility to the interactor. By broadening our conception of the virtual beyond a narrow and recent computational meaning that dates from the late 1950s and is focused on digital illusion, we understand virtuality as a transcendent or otherworldly quality to which many expressive works, across different eras and technologies, seek to provide access. The etymology of the term "virtual" dates back to the thirteenth century, borrowing from the Latin *virtualis*, which meant powerful in producing an effect, or potent. This older meaning of the term is in opposition to later definitions emerging in the seventeenth century, which utilize the term to mean "very near" or "almost." It is the earlier meaning of the term with which we align our study, particularly as the subject of one of our examples, the fifth-century Saint

6. Ibid., 78.

Simeon, was explicitly referred to as an "athlete of virtue" (see discussion below). Both "virtue" and "virtuality" point to a disciplined power, rooted in the "manly" (from the Latin *vir*, "man"). Virtuality, therefore, is a part of us, found within—although it is often activated by exterior experience, through conduits such as ritual, performance, narrative, or aesthetics.

We identify the experience of virtuality as partly informed by design, but also partly produced via interaction in a threshold space, where the person's or persons' experiences initiate a shift from the everyday into a heightened state of expectation, desire, freedom, fear, and—once on the other side of the limen—of ultimate transformation. HCI and design research has examined the concept of user movement through space and border crossings with concepts such as "onboarding"[7] and "trajectories;"[8] architectural research has investigated the movement of humans through space and perceptual properties of the view or vantage point;[9] and games for change have discussed design for change in player attitude or opinion, largely from the perspectives of persuasion or education.[10] Nevertheless, one concept of transformative experience design has not been widely examined: liminality.

7. Camilla Jaller and Stefania Serafin, "Transitioning into States of Immersion: Transition Design of Mixed Reality Performances and Cinematic Virtual Reality," *Digital Creativity* 31, no. 3 (2020): 213–222.
8. Steve Benford and Gabriella Giannachi, *Performing Mixed Reality* (Cambridge and London: The MIT Press, 2011).
9. John Peponis and Jean Wineman, "Spatial Structure of Environment and Behavior," in *Handbook of Environmental Psychology,* ed. Robert B. Bechtel & Azra Churchman (New York: John Wiley & Sons, 2002), 271–91; and Sonit Bafna, "Space Syntax: A Brief Introduction to Its Logic and Analytical Techniques," *Environment and behavior* 35, no. 1 (2003): 17–29.
10. Alissa N. Antle, et al., "Games for Change: Looking at Models of Persuasion through the Lens of Design," in *Playful User Interfaces* (Singapore: Springer, 2014), 163–84; and Carrie Heeter and Brian Winn, "Meaningful Play," *International Journal of Gaming and Computer-Mediated Simulations* 1, no. 3 (2009).

Drawing on classic definitions of liminality by Victor Turner,[11] understandings of the aesthetics and politics of interstitial spaces by Marc Augé and Sarah Sharma,[12] and contemporary theories of mixed reality by Rebecca Rouse et al.,[13] we seek to elucidate the techniques and strategies that stimulate the promise of crossing the boundary from the physical into virtuality. The boundary we are interested in here differs from the boundary crossing discussed in the design of onboarding. While onboarding is concerned primarily with attracting a user to become a participant in an experience and educating the user about procedures for interaction, the boundary crossing we investigate is one that provides a deeper transformation—not from spectator to participant, but from one stage of consciousness or meaning-making to another. This deeper, more transformational boundary crossing has permanent effects. When an onboarded participant is done with a media experience, the participant is off-boarded; this transformation is temporary. An illusion-based experience may momentarily surprise or entertain, but when the experience is over, the participant will return to a state of spectatorship or non-participation. Indeed, realization of the nature of the illusion (a dis-illusionment) is necessary to fully experience the pleasure of such interactions, because pleasure in the mediation (whatever the technology) is part of apprehending the artistry of the work. In contrast, when a liminal experience is over, the interior transformation within the participant remains, since the power of the stimulating work does not rest on illusionism alone. In this sense, the virtual of the liminal experience is not identified with fakery, but rather with an altered state of mind, body, or soul. Liminal transformation may take many forms and might be as subtle as the realization of a new perspective gained while reading an effective work of literature or as marked as the transformation we experience moving through a social or religious ritual, such as a graduation or baptism.

11. Victor Turner, *The Ritual Process: Structure and Anti-Structure* (Ithaca: Cornell University Press, 1977).
12. Marc Augé, *Non-places: Introduction to an Anthropology of Supermodernity* (London and New York: Verso, 1995); and Sarah Sharma, "Baring Life and Lifestyle in the Non-Place," *Cultural Studies* 23, no. 1 (2009): 129–48.
13. Rebecca Rouse, Maria Engberg, Nassim Parvin, & Jay David Bolter, "MRX: An Interdisciplinary Framework for Mixed Reality Experience Design and Criticism," *Digital Creativity* 26, no. 3–4 (2015): 175–181.

Indeed, our conception of the virtual locates it *at the limen*, where multisensory engagement with the virtual offers real engagement with the spiritual or transformative in entanglement between the architectural, the material, and the corporal. In this framework, the limen may be structural, artifactual, or even human, as in the "liminal personae" described by Turner. As Turner sees it, the liminal may also provide potentials for political and social transformation on a large scale:

> The anti-structural liminality provided in the cores of ritual and aesthetic forms represents the reflexivity of the social process, wherein society becomes at once subject and direct object . . . in [liminality] are generated new modes, often fantastic, some of which may have sufficient power and plausibility to replace eventually the force-backed political and jural models that control the centers of society's ongoing life.[14]

Through liminal experience, people are put into relation with one another and themselves (their own interiorities and others') in new ways, a process described by Turner as "communitas," "reveal[ing] however fleetingly, some recognition…of a generalized social bond."[15] Perhaps optimistically, Turner sees the potential of material and political transformation of society via reflexive, relational, and ritualized processes.

It is important to note the cultural and social differences not only between the examples we examine, but also the theoretical frames we apply in interpretation. Turner's writing, which dates from over fifty years ago and is focused on the study of indigenous cultures, is in some ways situated quite far from current social and cultural experience in western societies in the second decade of the twenty-first century. In investigating the nature of liminality as betwixt/between in our three examples below, we will introduce more contemporary theorists, such as Marc Augé and Sarah Sharma, to provide additional insights into the qualities, experiences, and politics of liminal spaces.

14. Turner, *The Ritual Process*, vii.
15. Ibid., 96.

A Triptych: Column/Saint, Desert/Martyr, Monument/Veteran

Focusing on the characteristics of location, scale, time, sensory experience, interaction, indexicality, and ethos in each example (see Image 6.1), we draw out the ways in which virtuality is animated across media and time. It is at the interface of the sensory that we locate the interior limen, between exteriority and the inner self. We suggest that through the alignment of this interior limen with the limen of the larger experience design, an invitation into transformational experience is extended. The chapter closes with a set of specific design considerations regarding the production of the liminal for designers working with MR technologies today and in the future.

Image 6.1. *Images of the three example works. Left: John Craig Freeman, Border Memorial: Frontera de los Muertos, showing participant view of 3D model calaca skeleton figure overlay through the phone screen at the Arizona/Mexico border, 2012 (image permission from John Craig Freeman, augmented reality public art, Lukeville, AZ, 2012). Center: Basalt relief carving of Saint Simeon atop his column with acolyte bearing incense approaching via ladder, Syria, 5th-6th century CE (image permission pending from the Staatliche Museen, Berlin). Right: Krzysztof Wodiczko, Abraham Lincoln: War Veteran Projection, showing video of veteran projection mapped onto Lincoln statue in Union Square, New York City, 2012.*

Disturbing or exhilarating mixing of different realities, invitations to immersion, uncanny presence in the absence of the body, even the portability of objects that work as portal thresholds to something different that lies beyond: these are not just the hallmarks of virtual interiorities today, but have characterized many transformative, liminal experiences and their props in the past. A remarkable example with multiple layers comes from late antique Syria.

In the fifth century CE, a troubled or needy pilgrim might have left where they lived to seek an audience with the famous Syrian hermit, Simeon the Stylite, at the remote desert site later known as Qal'at Sim'an (see image 6.1, center). Simeon is documented as pioneering the ascetic practice of distancing himself from others by standing, uncovered, atop a column (which was heightened several times) for up to four decades, the better to devote himself to worship of God. For this reason, he is known as St. Simeon Stylites (from the Greek *stylos*, "column") the Elder (ca. 386–459 CE), which distinguishes him from another later Simeon who sought to emulate him. His self-imposed exile from human society, evacuation of the ground plane, elevation towards the sky, and unrelenting practice of standing and genuflecting while in prayer took his body to ascetic extremes of bodily mortification while focusing his attention and activity on venerating God. Simeon's adoption of a column as his architectural prop made sense within both the general religious history of the Ancient Near East—in which mountaintops and artificial mounds were seen as places to communicate with God—and the built environment of the ancient Mediterranean region, which employed Greco-Roman columns liberally.[16]

Like other early Christian holy men and women, Simeon was celebrated as an "athlete of virtue," someone who exercised a discipline of the body that was linked to a training of the soul:

16. Laura Hollengreen, "Qal'at Sim'an: A New Venue of Power in Late Antique Syria," in *Proceedings of the 2021 ARCC* [Architectural Research Centers Consortium] *Conference* (2021): 275–82.

> The weirdness of St. Simeon's dwelling on the column, his obsessive actions of bowing, the refusal of food except once per week, his stench and indifference to physical degradation: all took Simeon out of a comprehensible personal, subjective, and social realm and into a kind of pure "objectivity." Peter Brown argues that his objectivity in relation to non-ascetic mortal men gave Simeon something of the strangeness and supra-humanity of an ancient oracle (Brown 1971): indeed, he became the mouthpiece of the Christian God, wielding power (*dúnamis*) as traditional authorities waned.[17]

Ironically, respect for this extreme piety on the part of a man seen as an angelic figure, poised between heaven and earth, seeking total solitude, brought pilgrims to him who were seeking mediation with their God or their fellow people. In this way, St. Simeon's isolation was transformed into a center of activity. Simeon himself enacted a limen on his column-stage, linking lives and problems that were earthly, corporal, and mundane with access to a power that was heavenly, spiritual, and extraordinary. In this way, he worked a transformation in the pilgrim petitioners, who—according to the various miracles and other stories in the early *Lives of Simeon Stylites*—found healing, a path to conflict resolution, release from terror, and other changes to their daily lives.

It took a village of sorts—a full monastic community—to manage the pilgrim crowds, welcome them, accompany them into Simeon's presence, house and feed them, perhaps baptize them, and provide other ministries. As a result of these needs, a large, multi-functional monastic complex was built: its centerpiece was a huge church built around the site of Simeon's column (an eroded remnant of which was in situ until recently) that provided for both the regular liturgy of the church and the commemoration of the holy man. On site and in representations elsewhere, the column served as the most significant—and, indeed, readily recognizable—attribute of the saint and, after his death and the removal of his body, as an index of his presence. It continued to be the focal point of the monastery, the hill-top, and the whole surrounding area: in this way, Simeon's column was in spatial and visual dialogue with the columns of other stylites in the region (as charted recently by Lucas Schachner

17. Hollengreen, "Qal'at Sim'an," 277.

with GIS data).[18] In his long survey of late antique stylitism, David Frankfurter notes that what was new with Simeon was not the column, per se. Instead, it was the spatial liminality of being elevated and poised between heaven and earth.[19] According to Peter Brown, Simeon's column was his primary tool in the "craft of the [new, Christian] self."[20] The column-top meeting place of two worlds was thus the locus of an individual's agency; such agency could, in turn, change society. The column remained meaningful as the contact relic that testified to Simeon's ongoing power of intercession and miracle-working in place, localizing the holy for human perception. Simeon himself is described in late antique sources as "the wall" and "the tower,"[21] terms which may have resulted in the place name Qal'at Sim'an, literally "Fortress of Simeon." In an unstable society, the holy man, wall, and tower gathered and defended the faithful for a new God. Simeon worked an inner virtual, and sometimes an outer material, transformation through healing, adjudication, and his pious example.

In order to document, remember, and re-activate this one-time miraculous encounter with Simeon, pilgrims could buy a *eulogia* (Greek for "blessing") to take home. Unlike a souvenir meant to remind one of pleasant travels, this sacred object was fabricated on-site of local clay and imprinted with both an image of the saint on his eponymous column and the palm print of the craftsman who formed the token by hand (see image 6.2). There is, then, a double indexicality of site and touch for an object that was regarded as impregnated with the power of the saint and which could travel in ways the man himself did not. At the site and on the object, the saint could be seen on his column at the apex. The convex-sided lozenge shape of the token may even have suggested the entirety of

18. Lucas Amadeus Schachner, "The Archaeology of the Stylite," in *Religious Diversity in Late Antiquity*, ed. David Gwynn and Susanne Bangert (Leiden: Brill, 2010), 380.
19. David T. M. Frankfurter, "Stylites and Phallobates: Pillar Religions in Late Antique Syria," *Vigiliae Christianae* 44, no. 2 (1990): 168–98.
20. Peter Brown, "The Rise and Function of the Holy Man in Late Antiquity, 1971–1997." *Journal of Early Christian Studies* 6, no. 3 (1998): 603.
21. Peter Brown, "The Rise and Function of the Holy Man in Late Antiquity." *Journal of Roman Studies* 61 (1971): 90.

the hilly site and the arduous experience of it by pilgrims.[22] Indeed, while the fame of this "stationary" stylite was later compounded by the spectacular architecture of the church and monastery built after his death (the church alone could accommodate 10,000 worshippers and is one of the most significant examples of late antique architecture between the fourth and sixth centuries), the transformation at work in the visitor was also concretized in and maintained by contact with the object taken home. It offered the intimacy of something handled—putting maker and owner hand-in-hand in a culture in which touch could have significant spiritual impacts—and provided access, through memory, to the liminal experience of pilgrimage.

Image 6.2. *Eulogia or "blessing" pilgrim token of St. Simeon Stylites the Elder, made at Qal'at Sim'an, Telneshe, Syria, 5th-6th century CE (artist's rendition by Rebecca Rouse). 23 x 18 x 8 mm. Ashmolean Museum, Oxford, AN1980.48A. Left: The body of Saint Simeon and the structure of the column are merged on the recto of the object. Right: The palm print of the maker of the token is visible on verso.*

22. Heather Hunter-Crawley, "Divinity Refracted: Extended Agency and the Cult of Symeon Stylites the Elder," In *Lived Religion in the Ancient Mediterranean World: Approaching Religious Transformations from Archaeology, History and Classics*, ed. Valentino Gasparini et al. (Berlin: de Gruyter, 2020), 277.

National Border in the Desert

In 2012, artist and educator John Craig Freeman released *Border Memorial: Frontera de los Muertos* (see image 6.1, left), a public art project in the form of a mobile app that provided an interactive MR approach to perceiving the problem of migrant deaths in the desert Southwest.[23] After downloading the app (sadly no longer available), users could point the phone's camera at the landscape and view—via GPS data—specific sites of migrant deaths. These sites were augmented on screen in commemoration with digital models of *calacas*, skeletons which are commonly seen at Mexican *Día de los Muertos* festivals.

The political context for Freeman was that of federal border policy beginning in the early 1990s. During Operation "Hold the Line" (1993) and Operation "Gatekeeper" (1994), migrants from Mexico and Central and South America were increasingly shunted away from the border regions of California and Texas and into the arid lands of the Sonoran Desert in the Tucson, Arizona, sector. These lands are sparsely populated and subject to searing temperatures and lack of groundwater during the extended warm season from April through October. Accordingly, the number of migrant deaths in the sector rose dramatically. While it has not been possible to identify every body found, Freeman and others brought attention to the scale of the tragedy and the myriad sites where migrants breathed their last.

The thing that is "real" in the MR environment of *Border Memorial* is the place, the specific locale where a life was lived and lost, of which the GPS data is an index. Freeman banks on the participant's immersion in the landscape of the site, which, given the absence of the bodies after their remains have been collected and removed, he characterizes as "hauntological." That the victims lack names and faces, represented only as *calaca* avatars, is in part probably pragmatic: the data is likely incomplete. Yet this absence also acutely sensitizes participants to the massive scale of the deaths of migrants in this part of the country. That real-

23. John Craig Freeman and Jessica Auchter, "Border Memorial: Frontera de los Muertos," *Hyperrhiz: New Media Cultures* 12 (2015).

ization is brought home for participants as it takes place by means of a portable handheld device, one which has become an omnipresent extension of our own bodies in contemporary society. On his website, Freeman likens this to the haptic experience of architect Maya Lin's *Vietnam Veterans Memorial*.[24] This analogy goes only so far, however. The haptic experience at the memorial in Washington is at the scale of the participant's whole body, which, in walking the delimited length of the memorial, tracks the thousands of names that unspool on the wall and sees itself reflected in the polished surface. There is a groundedness in Lin's work that reflects the weight of bodies and supports the weight of grief, making Freeman's free-floating c*alacas* seem not just ephemeral but lightweight in other ways as well. While Freeman's aim is a noble one and the body of the participant is brought to the site, the lack of individuation (in contrast with the multitudinous names on Lin's *Memorial*) and, more crucially, the relatively pallid embodiment via the use of unchanging and stylized imagery on a small screen, blunts the effectiveness of the project. Personal name and impersonal imagery are not equivalent, something Freeman certainly acknowledges; he seeks to defend his project as being about "human beings . . . within our social and political communities" of memory and memorialization, rather than about specific migrants.[25]

Border Memorial: Frontera de los Muertos takes the participant to borderlands, a political limen at which each country begins its presencing[26] that becomes an existential limen, transforming migrants into martyrs. In this sense, the MR project goes to the ultimate site(s) and spaces for people on the move whose numbers might suggest the community Turner evokes, a community enlarged by those participants using Freeman's phone app. Marc Augé's work, however, re-identifies such liminal or interstitial spaces as "non-places" of anonymity for most people in contemporary society. Focusing on the aesthetic and procedural quality of spaces such as airports, border crossings, motorways, and supermarkets, Augé provides a conception of life today in what he terms "super-

24. John Craig Freeman, "Border Memorial: Frontera de los Muertos," https://johncraigfreeman.wordpress.com/border-memorial-frontera-de-los-muertos/.
25. Freeman and Auchter, "Border Memorial."
26. Homi K. Bhabha, *The Location of Culture* (London and New York: Routledge, 2004), 1–12.

modernity" as marked by a trilogy of surfeit: "overabundance of events, spatial overabundance, the individualization of references."[27] He defines these supermodern non-places in opposition to the places of modernity, theorized by anthropology and "defined as relational, historical and concerned with identity."[28] In contrast to the organic societies of modernity that created places, supermodernity creates non-places, which are marked by "solitary contractuality," continually addressing inhabitants as individuals who may be networked (and thus exposed) but are not members of any community and who are subject to the transactional processes of global capitalism.[29] Non-place is identified with both a loss of the local or the particular, but also a paradoxical global homogenization—meaning the inhabitants of contemporary non-place (which has the potential to arise in any place, at any time) "are always, and never, at home."[30] Augé is careful, however, not to paint non-place as dystopia, instead identifying the experience of non-place as a kind of relief or relaxation into relative anonymity, playing on the double meaning of the "duty-free" zone of an airport, free of both tax and normal expectations, structures, and behaviors. Even in proximity to others, some are privileged to find the "unique luxury of being 'alone at last.'"[31]

There is then an ambivalence or duality in Freeman's *Border Memorial* which locates the participant in a specific place (or acknowledges it when the participant is already there) but also reveals the non-place of contemporary statecraft, with the implacable plight of those who die there in numbers, often anonymous and disregarded. This is valuable work in the service of documentation and public education, but from our perspective it does not succeed in bringing participants to an interior emotional limen, a reluctance justified as not reifying the migrant body or biography. With this choice, the project does not end in the powerful transformation that is the promise of true liminality. Freeman indicts the necessity of "biopolitical struggle" in which certain bodies matter and

27. Augé, *Non-places*, 40.
28. Ibid., 78.
29. Ibid., 94–96.
30. Ibid., 107–09.
31. Augé, *Non-places*, 6.

others don't, but then replicates the anonymity of the latter by means of a spectral presence that is too abstractly communicated in graphic terms to be strongly felt. A recent article on the project by Alyssa Quintanilla notes "the continuous need for collective and communal mourning, not for specific people but in individual places."[32] But how communal is mourning that is stimulated by individuals with their personal cell phones out in the desert? They participate in a network but are not (yet) a community. And why should individual places be prioritized above specific people? The index of the martyred migrant is rendered legible only in computational terms, as a GPS coordinate, in order to deliver this data to the participant's cell phone location with accuracy. While accurate, the use of the index in this case does not evoke a feeling of the virtual presence of the lost other or an evocation of presence via absence as we will see is done in our final case study discussed below.

Domestic Racial Borders in the City

Another MR project also intended to call attention to an oppressed group in American society debuted that same year. Krzysztof Wodiczko's *Abraham Lincoln: War Veterans Project* (2012) was on view in Union Square in New York City for a month in late fall (see image 6.1, right).[33] The Square features a memorial statue of Abraham Lincoln erected in 1870, onto which images of contemporary veterans of the war against terror in Iraq and Afghanistan, and the earlier war in Vietnam, were projected while recordings of their voices played. Wodiczko had explored projections onto monumental, celebratory, and memorial public structures in earlier projects,[34] but the choice of a figural ground for the projection mapping in *War Veterans Project* brought the work more fully into the realm of the uncanny, as is still evident in recordings and photos. Adopting postures similar to those of Lincoln, the contemporary figures who were filmed adhere to the statue's contours and thus seem to inhabit it: in that pos-

32. Alyssa Quintanilla, "Mourning Absence: Place, Augmented Reality (AR), and Materiality in *Border Memorial*," *MAST (Journal of Media Art Study and Theory)* 1, no. 2 (2000): 103–23.

33. Krzysztof Wodiczko, "Abraham Lincoln: War Veterans Project,"https://www.krzysztofwodiczko.com/public-projections#/new-gallery-31/.

34. Duncan McCorquodale and Rosalyn Deutsche, eds. *Krzysztof Wodiczko* (London: Black Dog Publishing, 2011).

session, they bring dead material and a dead man to life. The frisson of the work derives not simply from the confusion between (or layering of) what is dead and what is alive, inert, and dynamic, but also from the fact that many of the veterans involved are Black. Not even Lincoln, revered champion of the Union with its commitment to the abolition of slavery, can convey the experience of Black Americans. The veterans speak of the trauma of war that affects soldiers of color disproportionately due to their high enlistment rates: its sensory overload, its chaos, the lack of individual agency, and the fatalism that it encourages. They do not complain, though; they simply tell—and, in the telling, they call into question the grandiosity of memorial artwork and the claims that it represents a public which, in fact, is mis-represented as unitary.

The monument which Wodiczko adopted as site for this MR work is no longer the destination it was intended to be at the time of its erection.[35] Indeed, within the quotidian bustle, dense inhabitation, and historical amnesia of global cities like New York, it and other such sites risk lapsing into invisibility, if not actually losing their status as "places." As a slim oval of park and plaza space sandwiched between tall buildings, busy streets, and subway entrances, Union Square is less destination than other Manhattan parks and more thoroughfare. Experienced briefly on a

35. The statue of Abraham Lincoln was an addition to the early nineteenth-century Union Square (originally Union Place), named not for the "Union" that was the United States but for the intersection of two major streets (Bloomingdale Road, now Broadway, and Eastern Post Road, later Bowery Road and now Fourth Avenue), later developed into a park and already ornamented with sculpture. At its beginning, the square was part of a largely residential neighborhood which, after the Civil War, became increasingly commercialized. The Lincoln statue by Henry Kirke Brown, dating to 1870, was critically panned at the time of its erection. For decades afterwards, it was located in a prominent spot in the southwestern part of the square but was re-located during a wholesale remodeling in 1930 to its current spot, facing south, near the square's northern edge. For more information, see the official website of the New York City Department of Parks and Recreation: https://www.nycgovparks.org/parks/union-square-park/history and https://www.nycgovparks.org/parks/union-square-park/monuments/913. Although now placed on an axis with the equestrian statue of George Washington (1856), also by Brown, at the southern end of the square, the Lincoln statue does not enjoy as spacious a setting or the open vistas that characterize the former and that used to belong to it as well. A recent article on the statue recounts early celebrations focused on the statue but ends with this sad commentary: "While no longer maligned, it [the statue] is more often simply overlooked." See Tom Miller, "Henry K. Brown's Much-Maligned 'Abraham Lincoln' Statue – Union Park," *Daytonian in Manhattan*, August 22, 2011, http://daytoninmanhattan.blogspot.com/2011/08/henry-k-browns-much-maligned-abraham.html. Wodiczko brought the statue back to life, temporarily, in more ways than one.

pedestrian's or motorist's journey, it may be seen as a place of traversal, where little is asked of the passer-by. Still, the non-places of contemporary capitalist co-option do not provide to everyone the "relaxing anonymity" and "unique luxury" of which Augé wrote. While the politics of the non-place are structured so that those in power are made to feel their traversal is naturally "smooth," others who do not conform to certain political categorizations (of race, class, gender, religion, nationality, ability, etc.) will find the traversal of the non-place to be a much rougher ride.[36]

In this context, Wodiczko succeeds in suggesting a possible re-creation of place and the construction of community by using the digital to create a limen. Contemporary bodies are indexed in their filmed images and recorded sounds, which are then projected onto the iconic historical monument. In projecting images of multiple veterans over time, Wodiczko honors the individuality of each but also reveals the common military training for the battlefield that distinguishes them from most of the work's viewers: passers-by who have chosen not to share in that experience. Several pairs of distinct realities are "mixed" here. A civilian leader fabled for his intelligence and modesty is mixed with the kind of rank-and-file soldiers who do the bidding of the President. A memorial once sanitized of ambivalence and ugliness is augmented by the gory details of actual service. A figure deemed worthy of remembrance is paired with the forgotten of society, only here and now—temporarily—given face and voice. Following Lincoln's gaze, which rests on a central point in the park that hosts a large flagpole on a pedestal, the projected gaze of the veterans' own glances now also casts their vision toward one of the ultimate American symbols: the flag. This layered gaze toward the flag highlights the complexity of nationhood, the multiplicity of perspectives represented (or not represented) by this symbol, and how its meanings are con-

36. On this point, Sarah Sharma provides a deepening of Augé's perspective, drawing our attention to the politics of non-places in the twenty-first century: "the non-place operates under a mixed regime of camp and spectacle, wherein bare life and the cultivation of lifestyle enter into an interdependent relationship." Sharma identifies the interdependence or entanglement of these two types of spaces in contemporary society, cautioning against an overly sterile or apolitical understanding of the non-place: "Non-places are built environments that are not only built by people but cleaned by *people*." "Baring Life and Lifestyle," 146.

tinually contested over time. The passer-by is invited to linger, look, and listen but is given no stable place from which to observe, as the comparative back-and-forth of perceptions, meanings, and symbolisms calls into question the fixity of both past and present. Past and present interrogate, destabilize, and complicate each other. Wodiczko describes this approach in which historical edifice and living veterans are brought into conversation with one another and passers-by as follows:

> Bringing back the past to think through it[,] so maybe the mistakes of the past will not repeat themselves again, that's something monuments can do, only if we help them. We must keep in mind that the veterans, themselves, are monuments. They are living monuments to their own trauma. So, this kind of project gives them something very precious, to be speaking monuments.[37]

Precisely because of the reliance on individual images and voices, Wodiczko's work is more affecting than Freeman's. The underlying narratives are compelling in both cases, but the (re)presentational choices are more successful in *War Veterans Project* because they are rawer: they do not default to stylization or tradition. In fact, they call stylization and tradition into question, with the contemporary veterans' voices not only speaking their own truth but also evoking the absence of decades of earlier veterans' voices. In so doing, an opportunity for transformation and freshly realized communitas is proffered. Passers-by cannot easily remain aloof and uninvolved: whether White, Black or of another race, they are implicated, individually and personally, in the manifest ongoing racial contestation of our country and our ongoing militaristic legacy. Even if passers-by do not directly engage one another, they are called into relation with the fourteen veterans animating the monument, the legion of other veterans referenced by extension, and invited into a transformative consciousness and new understanding regarding both the interrelation and disjunction between those who serve and those who do not.

37. MoreArt, "Krzysztof Wodiczko, Abraham Lincoln: War Veteran Projection, 2012," posted 2012, Vimeo video, 3:04, https://vimeo.com/51821413.

In each of the examples above, the physical and the virtual augment one another: the saint on his column and both the later architecture of the site and the take-away tokens, the border and 3D digital models, the statue and projections. All of the works are memorial in intention, but according to a conception of memorialization that, in each case, was new at the time. In the case of the medieval saint, memorialization is part and parcel of the cultivation of the saint's cult, even as his holy power can be manifested in objects associated with his body but far from it physically. Liminal experience and transformation are likewise rooted in a dialogic encounter which augments one's person or thinking with something or someplace other. The deaths of migrants are memorialized by a digital means of marking, thus making visible their locations even when the bodies of the dead are no longer present. Finally, the traumatic experience of war veterans, like the trauma of the political refugee, is memorialized in ways that, like the border memorial, call into question the unity, coherence, and meaning claimed of political histories and contemporary policies. The otherwise distant service of the invisible veteran is rendered visible and audible. We can see these transformations in relation to Jay Bolter's discussion of different aesthetics in different media.[38] The transformations may be spectacular, permanent, and cathartic (as in a saint's healing); contemplative, contextualizing, and *reflexive* (as in Wodiczko's projection, fostering a new understanding of US society and history); or provide access to the true nature of the consuming and fluid socio-political and economic space in which we live and move (as in Freeman's app). As the twelfth-century medieval monk Abbot Suger once remarked of the decoration of his new Gothic Church of Saint Denis near Paris, the "dull mind [of the uninformed participant, the indifferent passer-by, the helpless pilgrim, or even the monk] rises to truth through that which is material" as perceived by the senses, but, "transferring that which is material to that which is immaterial" arrives at a "dwelling, as it were, in some

38. Jay David Bolter, "The Aesthetics of Flow and the Aesthetics of Catharsis," in *Technology and Desire: The Transgressive Art of Moving Images*, ed. Rania Gaafar and Martin Schulz (Bristol, UK, and Chicago: Intellect, 2014), 121–35.

strange region of the universe which neither exists entirely in the slime of the earth nor entirely in the purity of Heaven."[39] The limen presents a mixing of realities which augment one another and make possible new perspectives and new life.

Elements of Liminal Design

Reflecting on our trio of examples, we have abstracted a set of elements and created an initial taxonomy that captures the essential qualities of each example. This allows a deeper level of comparison and makes it possible to suggest strategies for the designer that can effectively contribute to the experience of liminality and interior transformation. The elements of liminal design we identify are: *location*, *scale*, *time*, *sensory experience*, *interaction*, *indexicality*, and *ethos*.

Location

At Qal'at Sim'an, the location was initially configured as a minimalist non-place, outside the boundaries of any town, with the column of the saint rising out of a rocky promontory in the Syrian desert which he had chosen as a site of self-imposed exile from human society. Later, a pilgrim drawn by the fame of the miracle-working saint and who wished to visit the stylite undertook an arduous climb up the hillside, an ascent up a Sacred Way that eventually arrived at the foot of the column.[40] Later still, the location was expanded into a vast monastic and pilgrimage center. In the case of *Border Memorial*, the participant is invited to explore a variety of locations, some located in the remote desert and others in towns, cities, or suburbs along the Arizona/Mexico border. The designer is constrained by the documentary nature of the work and has no control over the locations chosen for the participant to traverse, since locations are derived from a set of GPS data coordinates recording where those migrating have been found dead. The participant may experience these loca-

39. Erwin Panofsky, ed. and trans., *Abbot Suger on the Abbey Church of Saint-Denis and Its Art Treasures* (Princeton: Princeton University Press, 1946), 49, 63, 65.

40. Ann Marie Yasin, "The Pilgrim and the Arch: Paths and Passageways at Qal'at Sem'an, Sinai, Abu Mena, and Tebessa," *Excavating Pilgrimage: Archaeological Approaches to Sacred Travel and Movement in the Ancient World*, ed. Troels Myrup Kristensen and Wiebke Friese (New York: Routledge, 2017), 166–86.

tions at any time of day, or season, meaning there is great variation in the environmental qualities of the encounter in the landscape. In the case of *War Veterans Project*, the installation is placed in the high-traffic, urban location of Union Square but is shown only at night, after rush hour, during a few weeks of the year when light conditions are best for highlighting the projected images and noise levels are low enough to allow for the audio of the installation to be heard by passers-by.

Across our three examples, we see a range of design strategies in terms of location: Qal'at Sim'an provides an example of a project that progresses from use of a found space (the desert environment where the saint first erected his column) to a highly designed, immersive architectural environment with the later construction of the church and monastery. In the case of the church, the designer had to respond to the surrounding environment and work within the constraints of the landscape but had more effective control over the pilgrim's experience of the space. *Border Memorial* takes a seemingly neutral approach, which we might even identify as a "found space" approach, connecting to the early Modern avant-garde practice of "ready-made" sculptures by artists such as Duchamp, who took found objects and presented them within the artistic frame to reconfigure them as art. Similarly, Freeman has placed the *Border Memorial* locations ("found" GPS coordinates) into an artistic frame, exhibiting this work at institutions such as MoMA.[41] Wodiczko's approach, finally, might be described as a blended approach to space in terms of design strategy. He uses a "found" space (the public space of Union Square) but only during particular times when he has some expectation of general uniformity of environmental conditions. While the designer still has limited control over the space in this case, he has made a careful selection of the available conditions that best suit his work. In this way, Wodiczko takes an existing urban node and remakes it, bringing to it new life.

41. An early version of *Border Memorial* was installed in the MoMA outdoor sculpture garden, as part of the self-described "Augmented Reality Art Invasion" guerilla-style AR exhibition on October 9, 2010, organized by Sander Veenhof and Mark Skwarek. The MoMA installation of the work has a different ethos from the site-specificity of the desert and brings with it the curated sanction of the high art world, as opposed to the remote, DIY aesthetic of the Arizona version.

Scale

At Qal'at Sim'an, Simeon stood aloft, roughly 60 feet above pilgrims, and was accessible physically only by a ladder, which an acolyte climbed daily to bring food and petitions to him. The sense of scale was later augmented by the construction of the vast church which, while providing a regular liturgical space in its eastern arm, was spectacularly centered on the column. This attribute of the saint's asceticism came to symbolize him altogether in the absence of his bodily remains, which had been taken to the Cathedral of Antioch. The scale of *Border Memorial* is even larger, covering many miles. This stands in contrast with the scale of the MR interaction, which is miniaturized, and is viewed by an individual through the hand-held mobile phone screen. In the case of the *War Veterans Project*, the projections are precisely scaled to the large statue, with the footage of veterans posed in the same stance as the underlying sculpture of Lincoln. The sculpture itself is larger than life-sized, and rests on a fifteen-foot-high pedestal, meaning the projections and the statue itself are easily visible to passers-by.

Here, too, we see variation in the ways in which scale is in play. While *Border Memorial* is the project that covers the largest area in terms of square miles, this scale is experienced by the participant through the miniature window of the smartphone of a singular individual. The hermeticism of scrutinizing things alone on a small screen telescopes the experience down to the individual who is removed from the immediate social context. The scale of *War Veterans Project* is closest to human scale, at just fifteen feet above the heads of passers-by, and the projections are precisely scaled to the statue. At Qal'at Sim'an, the site evolved over time from a singular prop and later monument to a saint's piety to a very large pilgrimage complex of monastery, hostels, baptisteries, and more. Still, the opportunity to buy a small, hand-made and hand-held pilgrim token meant that one could take the world of Simeon and the power of the saint home.

Time

The experience of time also varies across our examples for participant, passer-by, and pilgrim, respectively. For pilgrims coming to Qal'at Sim'an, the temporal experience was one of dramatic climax at the end of a personal, intentional journey that might have been local and thus short or supralocal and longer. Anticipation likely built over the duration of the journey, as the saint on his column hovers into and out of view, depending on the topography. The location where the participant encounters *Border Memorial* also affects the experience of time. For instance, a participant might spend an entire day following a trajectory from location to location along the lengthy border area augmented by Freeman. Encountering *Border Memorial* in the art museum context, such as it was shown at MoMA, might result in a much shorter encounter of only a few minutes, in which the participant might call up the 3D models to see a demonstration of how the application would function in situ. With *War Veterans Project*, it is possible some will not stop at all, but only glance or catch a brief snippet of audio. Those who do stop to witness the piece, or those who were alerted to its installation via interviews or other publicity and have come intentionally to view it, may stay for the entire 23-minute video loop and even watch the piece more than once.

In terms of time, *War Veterans Project* is likely intended as a roughly 20-minute encounter, *Border Memorial* is likely intended as a day-long exploration to be experienced on-site, and the experience of time on the way to and at Qal'at Sim'an likely extended to the whole life of the pilgrim. A healing or teaching by a holy man was not only a solution in the moment to a troubling problem but reached back in time to the model of Christ through the life of the individual, exemplary holy man and forward to the reunion with Christ at the end of time. In this way, miracles wrought by Simeon belonged to the entirety of salvation history and thus worked on a vast temporal scale.

Sensory Experience

At Qal'at Sim'an, the sensory experience of approach to Simeon entailed the muscular exertion of a steep climb, intermittent sight of the saint until one stood at the foot of his column, and auditory reception of his words. This experience might have been individual but was more likely undertaken as part of a crowd; in both cases, it was managed and mediated by the monks at the site. The formal enlargement of the complex into a full-fledged monastery and orchestration of the pilgrimage extravaganza testify to the ecclesiastical, institutional interest in overseeing and framing the cult of such a holy man. The sensory experience of Qal'at Sim'an was thus significantly transformed over time, with the proliferation of framing devices (a triumphal arch, building portals, etc.) which prepared the pilgrim and, at each point in the journey, refocused attention on what was to come. Finally, the *eulogia* which one could take home introduced an explicitly tactile dimension: it was a small object which could be handled or worn. Such objects were often kept close to the body.

For participants of *Border Memorial,* the sensory experience can vary dramatically based on which sites are visited, at which time of day, during which season of the year, and so forth. The sensory experience of the cell phone is not reflexively referenced in the piece; instead, the device is used as a transparent interface to access the digital layer of the piece. Because of the great variation across sites in *Border Memorial,* it is hard to say exactly what the participant would take in sensorially in terms of light, smell, sound, form, texture, and so on. The sensory experience of Union Square is more constrained and therefore easier to capture as one of urban bustle, with the accretion of layers of history in its range of nineteenth- and twentieth-century architecture, the neon signage of contemporary shop fronts, the green space of the small park and pavilion, and a subway entrance. Multiple sculptures are situated in the small park, including George Washington on horseback, the Marquis de Lafayette, and Mahatma Gandhi. Passers-by are mostly accustomed to not seeing these sculptures: during their daily trajectories through the city, such accoutrements to public space can become largely invisible to the habitué of the area. For this reason, there is considerable shock in seeing one

of the statues brought to life, as it were, through video projection and sound. This displaces and decontextualizes the prop, enticing the attention of the passer-by to look and listen anew. The tight coupling of the projection mapping with the underlying sculpture—which occasionally results in strange disfigurement of the projected face, as Lincoln "peeks through"—can also provide an experience of the uncanny in the shifting junction/disjunction between three dimensional and projected form, an illusion of the inert brought to life through the video animation and sound.

Interaction

Interaction at Qal'at Sim'an was more ritualized than with the contemporary examples and mediated by human actors more than by technology. This is the example that works most successfully across scales of space and time. And because the site was one of ascetic practice and religious veneration, it was freighted with both individual and shared meaning from its beginnings, unlike the non-places of capitalist supermodernity. Interaction in *Border Memorial* is facilitated by the movement of the participant in space which calls up the 3D *calaca* models as markers at each site where the body of a migrating person was found. Nevertheless, the memorialization of each person who died is not advanced or internalized by the participant, who simply watches abstract imagery on a small screen. In the case of *War Veterans Project*, the Union Square passer-by is enticed or challenged by the voice and image of the veterans, one of whom explicitly implores the passer-by to "do something for the veterans!"[42] The voice is one typically not heard so directly. This example provides opportunity for interpretive interaction, as well as interaction with other passers-by who also pause to view the piece. While there is no haptic element, the scale of the representation is closer to human scale than that in *Border Memorial*, and personal reflection is stimulated by the personal stories of the veterans. One feels implicated.

42. Maria Niro. "Krzysztof Wodiczko - Abraham Lincoln: War Veteran Projection by Maria Niro (c) 2012," posted 2012, Vimeo video, 2:56, https://vimeo.com/53446621.

Indexicality

At Qal'at Sim'an the indexical can be found in two places. The first is the eroded remains of one drum from the column of the stylite, an index marking and representing where he once stood. Only recently, it was displaced from the original base of the column by shelling (perhaps by Russian forces supporting President Bashar al-Assad) in Syria's ongoing civil war, in what can only feel like an architectural and cultural martyrdom, though its aims may have been more pragmatic.[43] The second site of indexicality is the design of the pilgrims' tokens, intended to be taken home with the pilgrim as a way of extending access to the site and the saint. On their upper side, they carried an image of Simeon atop his column and indexed the site through the local clay used in fabrication of the objects, which bear indexical traces of their makers' handprints. For *Border Memorial*, the GPS location data for each *calaca* 3D model indexes the body of a migrating person found dead. The application functions by also collecting indices of participants' own bodies and tracking participant GPS coordinates in order to accurately call up the 3D models in the correct locations. While the indices of the absent bodies of the dead migrants and the present bodies of the living participants are thus brought into relationship within the app, this happens at the level of code: it is machine-legible but less human-legible. In terms of *War Veterans Project*, the video footage represents the fourteen recorded veterans indexically, in contrast to the iconic sculpture of Lincoln underneath, which bears no actual trace of Lincoln himself. Passers-by are thus invited to perceive the authenticity of the veterans, via the cinematic index, in contrast to the representational icon of Lincoln.

43. Shannon Steiner, "AYS: UNESCO World Heritage Site of Qal'at Sem'an Damaged in a Russian Air Strike," *Are You Syrious?,* May 13, 2016, https://areyousyrious.medium.com/ays-report-unesco-world-heritage-site-of-qalat-se-man-destroyed-in-a-russian-airstrike-c2ea4d36b8f3 .

Ethos

Our three examples vary from the didactic to the affective to the spiritual. The ethos at Qal'at Sim'an is one of religious belief and practice, as pilgrims sought a model for how to live a life pleasing to God, advice about how to solve problems of everyday life, and healing from what ailed them. The *Border Memorial* application is didactic in its approach, seeking to raise awareness and educate participants about the vast scale of the loss of life at the border by transforming the non-place of the border into a place of meaning-making and public education. Finally, the *War Veterans Project* also has the aim to raise awareness by highlighting the often ignored or silenced voices of veterans, but the approach is not didactic. Instead, the piece takes an approach that focuses on affective response with the veterans describing deeply disturbing wartime experiences and the realities of ongoing trauma. This emotive approach is intended to encourage a direct, empathetic connection between the passers-by and the veterans. Where Freeman's approach is systemic, Wodiczko's is more personal, though also suggesting broad political and social issues. Each location potentially involved a transformation that is the promise of liminality, but variously a transformation of soul, head, or heart.

Design Strategies for Liminality

The three potent examples described above have allowed us to develop a set of elements of liminal design and analyze the various ways in which each element is deployed across a range of contexts. Stepping back to reflect on the two works which seem to us most effective in creating a liminal experience—Wodiczko's installation and Qal'at Sim'an—we see that the presence of elements of indexicality and interaction stand out. Indexicality operates both as an effective way to entice or attract the passers-by or pilgrims into the experience. Both the uncanny play between the indexical video and sound of living veterans with the underlying, iconic Lincoln statue and the vertical columnar form as a literal pointer to Simeon's status at/as the apex of liminality call out to the passer-by or pilgrim to come forth and take notice of this invitation-into-relation with a virtual other. This being-in-relation-with is key to the quality of inter-

action made possible in these two examples. In both cases, the passer-by or pilgrim is not called to traverse the limen alone, but rather in dialogue with others, both present and not. Interestingly, the literal presence of another does not seem to be necessary to achieve this calling-into-relation via interaction when the use of indexicality is strongly in play. The power of the index-as-trace may effectively stand in for the presence of the absent other, as we see in the continued power of Simeon's column following his death. Virtual evocation of the absent other is critical to the possibility of transformation because it is transportative, working as a portal to a different world of understanding and, potentially, political action or healing.

In future research, we aim to assemble a typology of liminal designs which will address both objects and environments. Five opportunities for liminal design are sketched below but will be elaborated in subsequent publications.

Objects:

- Handheld objects, such as tiny medieval manuscripts, so-called "prayer nuts," and digital devices today: these offer an immersive world in the palm of the hand and invite the interactor's self-projection into the space of the object or representation.
- Wearable objects, such as medieval reliquaries and "smart" clothing today: these provide a haptic experience that transforms the body into a hybrid or cyborg entity, making it a vehicle of transformation.
- Figural works of art that "come to life," such as those described in medieval miracle stories and in immersive volumetric video capture or natural language AI interfaces: these cross an uncanny boundary between that which is inert or dead and that which is alive, bringing the interactor into a space that is betwixt/between and, therefore, ambiguous.

Environments:

- Built environments that flood the senses in an immersive expe-

rience, such as medieval cathedrals, nineteenth-century theaters, theme parks, and modern environments of total design: these invite the ecstatic surrender of their occupants.

- Extreme environments, such as the cave, desert, ocean, or mountaintop: these suggest extreme practices and experiences that take the interactor out of the realm of quotidian experience and to the limits of consciousness.

This typology should allow scholars and designers to address a wide variety of projects and design strategies. With respect to the examples discussed above, the categories of "art that appears to come to life" and "extreme environments" would seem to be particularly operative. A breaching of boundaries, essential to liminal experience, is activated when art appears to come to life. One of the most spellbinding, indelible experiences of the uncanny occurs when the seemingly incontrovertible difference between an inert object (even something that was once alive) and an animate being is confused, confounding the viewer's sense of presence and agency. Implicitly, something that has come to life can then operate in the world, either benevolently or malevolently. Wodiczko's mesmerizing and spooky *War Veterans Project* discussed above in fact blends this type of liminality with that of the wearable object, as the "dead" monument of a historical leader wears the "live" skin of someone else who is animated in projection. And at Qal'at Sim'an, an extreme environment offers an explicit departure from home and the known world into the forbidding edge conditions of nature. In the past and today, sparsely inhabited sites in the desert, the sea, and the mountains tempt those who wish to test themselves outside the social structures that constrain them in the city and domesticated landscape. From Early Christian saints in the Egyptian and Syrian deserts to contemporary loners, those who choose to go to the extremes experience the transforming immensity, isolation, and indifference of nature. Others, like the contemporary migrants and refugees highlighted by *Border Memorial*, may be forced into such environments in punitive political contexts. The perceived or actual risk is death. Virtual reality simulations of extreme environments detach

the participant from an immediate context—typically achieved by donning an isolating headset—and invite her to test the constraints of the normal physical world through an experience of free fall or other exhilarating, perhaps frightening, ordeals.

By presenting this set of elements of liminal design, and an initial structure for a typology of liminal designs, we have provided a new understanding of transformational experience centered on the concept of the limen. This lens offers designers a historically informed way to consider the development of experiences in which interior transformation of the participant is sought and offers theorists and historians a design-oriented perspective to consider in the analysis of such works.

Coda: Discarded Jeans

Coming back to the Arizona/Mexico border, a final example invites the reader over the limen. We offer this example in the tradition of the found object or ready-made, as a complement to the discussion of Freeman's work.

> During a walk in a state park south of Tucson, I happened upon something unexpected. I was walking through scrubby vegetation around the marshy edge of a lake under scattered tree cover when I came upon a pair of discarded jeans, lying just off the path on the ground. The jeans seemed forlorn, lying supine under a bush near the marshy, muddy verge of Patagonia Lake in Southern Arizona. They had been shed like a snake's skin and left behind. No wonder their owner took them off—it's uncomfortable wearing wet jeans. I imagine their owner sitting down briefly in a shady spot, one that felt protected from sight, in order to tug them down. But to abandon them? Was that intentional or were they simply forgotten in the mental fog of other considerations and worries or under threat?

The jeans looked unwearable. Still, like the carapace of a beetle, they seem to retain the shape of the body that once filled them, a fleshy, rotund, vital body. A spectral presence clung to them by virtue of their utter familiarity as everyday attire; as relic, they evoked the person who had left them behind.

> The site was near the border, a place of illegal migrant movement, of desperate striving towards a safer future. Perhaps the jeans' owner took them off but then went on to security. I hope so—fervently. But I will never forget the uncanny frisson associated with both their abandonment and their perdurance in that place. In that moment of pause and perception of the jeans, my movement through the space was interrupted, just as the owner of the jeans had paused to remove them.

The jeans as index of the missing other were an affective calling-into-relation with the absent owner, a powerful trace making visible the body that once occupied that space, through a common object, easy to identify yet also singular in having belonged to an individual. Abandonment suggests lack of value, an association that easily slides from forgotten objects to disposable people. Perdurance, on the other hand, suggests a material substance that is obdurate, a physical subsistence asserting its own agency, regardless of human choice. Seeing these jeans, so ordinary, so redolent of heavy use, so disregarded, abandoned in a place of movement and transition, highlighted for me the fraught limen of life and death, awareness and indifference.

Just as the Duchampian tradition of the ready-made challenges what counts as art, by relocating overlooked or discarded everyday objects of capitalist production from the non-place of detritus into the place-making frame of the art gallery, so, too, we present this final example as a scholarly version of the ready-made, to trouble notions of designed experience, and expand what counts as a scholarly object of inquiry. While the discarded jeans were not a designed artwork or installation, by placing them within the scholarly frame of writing here, we enact a performative shift that re-claims them as worthy of note. Moving forward with our research into liminal design, we thus also aim to expand our awareness beyond examples commonly framed as designed to encompass happenstance experiences that likewise powerfully invite us into liminal awareness.

Bibliography

Antle, Alissa N. et al. “Games for Change: Looking at Models of Persuasion through the Lens of Design.” In *Playful User Interfaces*, 163–84. Singapore: Springer, 2014.

Augé, Marc. *Non-places: Introduction to an Anthropology of Supermodernity*. London and New York: Verso, 1995.

Bafna, Sonit. “Space Syntax: A Brief Introduction to Its Logic and Analytical Techniques.” *Environment and Behavior* 35, no. 1 (2003): 17–29.

Benford, Steve, and Gabriella Giannachi. *Performing Mixed Reality*. Cambridge and London: The MIT Press, 2011.

Bhabha, Homi K. *The Location of Culture*. London and New York: Routledge, 2004.

Bolter, Jay David. “The Aesthetics of Flow and the Aesthetics of Catharsis.” In *Technology and Desire: The Transgressive Art of Moving Images*, edited by Rania Gaafar and Martin Schulz, 121–35. Bristol, UK, and Chicago: Intellect, 2014.

Brown, Peter. “The Rise and Function of the Holy Man in Late Antiquity.” *Journal of Roman Studies* 61 (1971): 80–101.

———. “The Rise and Function of the Holy Man in Late Antiquity, 1971-1997.” *Journal of Early Christian Studies* 6, no. 3 (1998): 353–76.

Frankfurter, David T. M. “Stylites and Phallobates: Pillar Religions in Late Antique Syria.” *Vigiliae Christianae* 44, no. 2 (1990): 168–98.

Freeman, John Craig, and Jessica Auchter. “Border Memorial: Frontera de los Muertos.” *Hyperrhiz: New Media Cultures* 12 (2015).

Freeman, John Craig. “Border Memorial: Frontera de los Muertos,” https://johncraigfreeman.wordpress.com/border-memorial-frontera-de-los-muertos/.

Gitelman, Lisa and Geoffrey B. Pingree, eds. *New Media, 1740–1915*. Cambridge and London: The MIT Press, 2003.

Grau, Oliver. *Virtual Art: From Illusion to Immersion*. Cambridge and London: The MIT Press, 2003.

Griffiths, Alison. “Sensual Vision: 3-D, Medieval Art, and the Cinematic Imaginary.” *Film Criticism* 37/38, no. 3/1 (2013): 60–85.

———. *Shivers Down Your Spine: Cinema, Museums, and the Immersive View*. New York: Columbia University Press, 2008.

Heeter, Carrie, and Brian Winn. “Meaningful Play.” *International Journal of Gaming and Computer-Mediated Simulations* 1, no. 3 (2009).

Hollengreen, Laura. "Qal'at Sim'an: A New Venue of Power in Late Antique Syria." In *Proceedings of the 2021 ARCC* [Architectural Research Centers Consortium] *Conference*: 275–82.

Huhtamo, Erkki, and Jussi Parikka, eds. *Media Archaeology: Approaches, Applications, and Implications*. Berkeley and Los Angeles: University of California Press, 2011.

Huhtamo, Erkki. *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles*. Cambridge and London: The MIT Press, 2013.

Hunter-Crawley, Heather. "Divinity Refracted: Extended Agency and the Cult of Symeon Stylites the Elder." In *Lived Religion in the Ancient Mediterranean World: Approaching Religious Transformations from Archaeology, History and Classics*, edited by Valentino Gasparini et al., 261–86. Berlin: De Gruyter, 2020.

Jaller, Camilla, and Stefania Serafin. "Transitioning into States of Immersion: Transition Design of Mixed Reality Performances and Cinematic Virtual Reality." *Digital Creativity* 31, no. 3 (2020): 213–222.

Kristensen, Troels Myrup, and Wiebke Friese, eds. *Approaches to Sacred Travel and Movement in the Ancient World*. New York: Routledge, 2017.

McCorquodale, Duncan., and Rosalyn Deutsche, eds. *Krzysztof Wodiczko*. London: Black Dog Publishing, 2011.

MoreArt. "Krzysztof Wodiczko, Abraham Lincoln: War Veteran Projection, 2012." Posted 2012. Vimeo video, 3:04. https://vimeo.com/51821413.

Niro, Maria. "Krzysztof Wodiczko – Abraham Lincoln: War Veteran Projection by Maria Niro (c) 2012." Posted 2012. Vimeo video, 2:56. https://vimeo.com/53446621.

Panofsky, Erwin, ed. and trans. *Abbot Suger on the Abbey Church of Saint-Denis and Its Art Treasures*. Princeton: Princeton University Press, 1946.

Peponis, John, and Jean Wineman. "Spatial Structure of Environment and Behavior." In *Handbook of Environmental Psychology*, edited by Robert B. Bechtel and Azra Churchman, 271–91. New York: John Wiley & Sons, 2002.

Quintanilla, Alyssa. "Mourning Absence: Place, Augmented Reality (AR), and Materiality in *Border Memorial." MAST (Journal of Media Art Study and Theory)* 1, no. 2 (2000): 103–23.

Rouse, Rebecca. "Media of Attraction: A Media Archeology Approach to Panoramas, Kinematography, Mixed Reality and Beyond." In *International Conference on Interactive Digital Storytelling*, 97–107. Cham, Switzerland: Springer, 2016.

Rouse, Rebecca, Maria Engberg, Nassim Parvin, & Jay David Bolter. "MRX: An Interdisciplinary Framework for Mixed Reality Experience Design and Criticism." *Digital Creativity* 26, no. 3-4 (2015): 175–181.

Schachner, Lucas Amadeus. "The Archaeology of the Stylite." In *Religious Diversity in Late Antiquity*, edited by David Gwynn and Susanne Bangert, 329–397. Leiden: Brill, 2010.

Sharma, Sarah. "Baring Life and Lifestyle in the Non-place." *Cultural Studies* 23, no. 1 (2009): 129–148.

Steiner, Shannon. "UNESCO World Heritage Site of Qal'at Sem'an Damaged in a Russian Air Strike." *Are You Syrious?,* May 13, 2016. https://areyousyrious.medium.com/ays-report-unesco-world-heritage-site-of-qalat-se-man-destroyed-in-a-russian-airstrike-c2ea4d36b8f3.

Turner, Victor. *The Ritual Process: Structure and Anti-structure*. Chicago: Aldine, 1969.

Wodiczko, Krzysztof. "Abraham Lincoln: War Veterans Project." https://www.krzysztofwodiczko.com/public-projections#/new-gallery-31/.

Yasin, Ann Marie. "The Pilgrim and the Arch: Paths and Passageways at Qal'at Sem'an, Sinai, Abu Mena, and Tebessa." In *Excavating Pilgrimage Archaeological Approaches to Sacred Travel and Movement in the Ancient World,* edited by Troels Myrup Kristensen and Wiebke Friese. Abingdon, Oxon; New York, NY: Routledge, 2017.

Zielinski, Siegfried. *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means*. Cambridge and London: The MIT Press, 2006.